DEPARTMENT OF TRANSPORTATION
Federal Motor Carrier Safety Administration
49 CFR Parts 385, 390, and 395
[Docket No. FMCSA-97-2350]
RIN 2126-AA23
Hours of Service of Drivers; Driver Rest and Sleep for Safe Operations

AGENCY: Federal Motor Carrier Safety Administration (FMCSA), DOT.

ACTION: Final rule.

SUMMARY: The FMCSA revises its hours-of-service (HOS) regulations to require motor carriers of property to provide drivers with better opportunities to obtain sleep, and thereby reduce the incidence of crashes attributed in whole or in part to drivers operating commercial motor vehicles (CMVs) while drowsy, tired, or fatigued. This action is necessary because the FMCSA estimates that between 196 and 585 fatalities occur each year on the Nation's roads because of drowsy, tired, or fatigued CMV drivers transporting property. The FMCSA estimates that this final rule when adhered to fully will save between 24 and 75 lives each year as a result of giving truck drivers an increased incremental amount of time to obtain rest and sleep.

DATES: The effective date is [INSERT DATE 60 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER], except for § 395.0 which is effective from [INSERT DATE 60 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER] through June 30, 2004.

FOR FURTHER INFORMATION CONTACT: Ms. Mary M. Moehring, Division Chief, Driver and Carrier Operations Division, Office of Bus and Truck Standards and Operations, FMCSA, (202) 366-4001, 400 Seventh Street, SW., Washington, D.C. 20590-0001.

SUPPLEMENTARY INFORMATION:

Preamble Table of Contents

The following is an outline of the preamble.

Preamble Table of Abbreviations

The following are abbreviations of terms used as well as abbreviations of commenters' names in the preamble.

ANPRM – Advance Notice of Proposed Rulemaking
AHAS – Advocates for Highway and Auto Safety
AAA – American Automobile Association
ABA – American Bus Association
ACOEM – American College of Occupational and Environmental Medicine
AMSA – American Moving and Storage Association
ARTBA – American Road and Transportation Builders Association
ARA – Agricultural Retailers Association
ATC – Agricultural Transporters Conference
ATA – American Trucking Associations, Inc.
AGC – Associated General Contractors
AAR – Association of American Railroads
CTA – California Trucking Association
CRASH – Citizens for Reliable and Safe Highways
CDL – Commercial Driver's License
CVSA – Commercial Vehicle Safety Alliance
CFI – Contract Freight, Inc.
DLTLCA – Distribution and Less-than-Truck-Load (LTL) Carriers Association
DOL – U.S. Department of Labor, Employment Standards Administration, Wage and Hour Division.
DOT – Department of Transportation
FARS – Fatality Analysis Reporting System
FAA – Federal Aviation Administration
FHWA – Federal Highway Administration
FMCSA – Federal Motor Carrier Safety Administration
FMCSR – Federal Motor Carrier Safety Regulations

FRA – Forest Resources Association
GES – General Estimates System
GRP – Gross Regional Product
IME – Institute of Makers of Explosives
IIHS – Insurance Institute for Highway Safety
IBA – International Bakers Association
IBT – International Brotherhood of Teamsters
IC – Collection of information
ICC – Interstate Commerce Commission
ICCTA – Interstate Commerce Commission Termination Act
IVI – Intelligent Vehicle Initiative
Landstar – Landstar System, Inc.
LTL – Less Than Truckload
LCM – Logistics Cost Model
MCMIS – Motor Carrier Management Information System
MFCA – Motor Freight Carriers Association
NAICS – North American Industry Classification System
NASTC – National Association of Small Trucking Companies
NASS – National Automotive Sampling System
NERA – National Economic Research Association
NHS – National Highway System Designation Act of 1995
NHTSA – National Highway Traffic Safety Administration
NITL – National Industrial Transportation League
NIOSH – National Institute for Occupational Safety and Health
NPTC – National Private Truck Council
NRMCA – National Ready-Mixed Concrete Association
NSC – National Safety Council
NSTA – National School Transportation Association
NSF – National Sleep Foundation
NPRM – Notice of Proposed Rulemaking
OOIDA – Owner Operators Independent Drivers Association
PATT – Parents Against Tired Truckers
PMTA – Pennsylvania Motor Truck Association
PMAA – Petroleum Marketers Association of America
RIA – Regulatory Impact Analysis and Small Business Analysis for HOS Options, December, 2002
RODS – Records of Duty Status
RSP – Regulatory Studies Program, Mercatus Center, George Mason University
TL – Truck Load
UMA – United Motorcoach Association
UMTIP – University of Michigan Trucking Industry Program
VMT – Vehicles Miles Traveled
Watkins – Watkins Motor Lines, Inc.

Statutory Requirement

Section 408 of the ICC Termination Act (Pub. L. 104-88, December 29, 1995, 109 Stat. 803, 958)(ICCTA) requires rulemaking to increase driver alertness and reduce fatigue-related incidents.

Agency Determination

When Congress created FMCSA, it provided that, "[i]n carrying out its duties the Administration shall consider the assignment and maintenance of safety as the highest priority . . ." [49 U.S.C. 113(b)]. As indicated above, Sec. 408 of the ICCTA directed the agency – then part of the Federal Highway Administration (FHWA) – to begin rulemaking dealing with a variety of fatigue-related safety issues, including "8 hours of continuous sleep after 10 hours of driving, loading and unloading operations, automated and tamper-proof recording devices, rest and recovery cycles, fatigue and stress in longer combination vehicles, fitness for duty, and other appropriate regulatory and enforcement countermeasures for reducing fatigue-related incidents and increasing driver alertness) . . ." [109 Stat. 958]. The agency's statutory focus on safety and the specific mandate of Sec. 408 both demand that this rulemaking improve commercial motor vehicle (CMV) safety. While recognizing the primacy of its safety mission, the agency must comply with a variety of statutes and executive orders requiring detailed analysis of the cost of regulations and consideration of their impact on regulated entities and other segments of society.

The FMCSA analyzed three alternative regulatory proposals in depth. Compared to the status quo, which includes a degree of non-compliance with the current HOS rules, the option proposed by the American Trucking Associations (ATA), would have marginally reduced fatigue-related fatalities and somewhat increased the cost of regulatory compliance. This results in a negative cost/benefit ratio. The option suggested by Parents Against Tired Truckers (PATT) would have reduced fatalities far more than the ATA option, but would have generated s ignificant increases in compliance and operational expenses. This results in a cost/benefit ratio far more negative than the ATA option.

The third alternative was proposed by the FMCSA staff. The analysis shows that this option would save many more lives than the ATA alternative, though not quite as many as the PATT option. While it would cost more than the ATA option, it would be much cheaper than the PATT alternative. The net result is a cost/benefit ratio slightly more negative than the ATA option but not nearly as negative as the PATT option.

The FMCSA has adopted the third alternative for this final rule. The rule represents a substantial improvement in addressing driver fatigue over the current regulation. Among other things, it increases required time off duty from 8 to 10 consecutive hours; prohibits driving after the end of the 14th hour after the driver began work; allows an increase in driving time from 10 to 11 hours; and allows drivers to restart the 60- or 70-hour clock after taking 34 hours off duty. Together, these provisions (and others discussed in detail below) are expected to reduce the effect of cumulative fatigue and prevent many of the accidents and fatalities to which fatigue is a contributing factor. Because the agency's statutory priority is safety, we have adopted a rule that is marginally more expensive than the ATA option but which will reduce fatigue-related accidents and fatalities more substantially than that option. The FMCSA believes that the rule represents the best combination of safety improvements and cost containment that can realistically be achieved.

Advance Notice of Proposed Rulemaking

On November 5, 1996, the FHWA published an advance notice of proposed rulemaking (ANPRM) for this ICCTA proceeding (61 FR 57252). The FHWA received and transcribed comments at six nationwide public listening sessions in March 1997 and placed these comments in the docket. The FHWA recorded more than 1,588 written (paper and electronic submissions) and transcribed oral comments to this docket after the November 1996 ANPRM. The FHWA extended the comment period for the ANPRM once to June 30, 1997.

The ANPRM discussed 33 relevant research studies the FHWA was aware of in 1996. The FHWA requested that the public provide additional research studies it believed to be relevant. The ANPRM comments provided or referenced an additional 30 studies. The FHWA obtained and examined these studies and identified additional research from 1997 through 1999 while developing an NPRM. See the index to all relevant research studies and the annotated literature review. The FHWA began developing a set of alternatives to analyze based on more than 120 research studies included in the docket.

Supporting Documents Notice of Proposed Rulemaking

On April 20, 1998, the FHWA published a notice of proposed rulemaking (NPRM) requesting comments on a proposed definition of "supporting documents" for the HOS regulations (63 FR 19457) in response to the Hazardous Materials Transportation Authorization Act of 1994, Pub. L. 103-311, 108 Stat. 1673 (August 26, 1994) (HMTAA). Section 113 of the Act requires the Secretary of Transportation to prescribe regulations amending 49 CFR Part 395 to improve both (1) compliance by CMV drivers and motor carriers with the HOS requirements, and (2) the effectiveness and efficiency of Federal and State enforcement officers reviewing such compliance.

The April 1998 NPRM proposed that motor carriers develop and maintain effective auditing systems to monitor the accuracy of the drivers' Records of Duty Status and HOS. The NPRM proposed that failure to create and maintain such a system would result in motor carriers being required to retain various types of business documents. The use of electronic recordkeeping methods was also proposed as a preferred alternative to paper records.

Development of the Notice of Proposed Rulemaking

The entire effort to revise the HOS regulations has been based on the concept that new rules would be science-based. This was the theme throughout the development of alternatives leading up to the publication of the May 2000 NPRM. Science was often cited by industry as the basis upon which the HOS rules should be reformed. Several modal administrations within the DOT, including the FMCSA, had undertaken significant research into fatigue causation and the dynamics of sleep. There was general recognition that the existing rules for the truck and bus industries had been implemented well before there had been a clear scientific understanding of fatigue causal factors (e.g., time of day, amount and timing of sleep, time awake, and time on task). The agency collected many relevant studies by authorities in the area of fatigue. It also completed its own comprehensive Commercial Motor Vehicle Driver Fatigue And Alertness Study, a joint undertaking with Canada and the trucking industry. In preparing the May 2000 proposal, the agency assembled an expert panel of recognized authorities on traffic safety, human factors, and fatigue to review the science and evaluate potentially effective and reasonably feasible regulatory alternatives. The resulting agency proposal relied heavily on scientific conclusions based on the research and analysis in Belenky, G., McKnight, A.J., Mitler, M.M., Smiley, A., Tijerina, L., Waller, P., Wierwille, W.W., Willis, D.K., (1998), Potential Hours-Of-Service Regulations For Commercial Drivers; Report of the Expert Panel on Review of the Federal Highway Administration Candidate Options for Hours of Service Regulations.

Regulatory reform of drivers' HOS in the truck and bus industries had been the subject of consideration by the agency for close to ten years before publication of the May 2000 NPRM. The FHWA's Office of Motor Carriers maintained an intensive driver fatigue research program starting in 1989. Truck and motorcoach driver fatigue had been identified and discussed by many industry analysts and safety advocates as a significant motor carrier safety issue. Major aspects of the proposal had been the subject of trade journal stories for nearly a year before the NPRM was published.

ATA Recommendation Submitted While NPRM Was Under Review at OMB

On December 3, 1999, the agency submitted the draft NPRM for review to the Office of Management and Budget (OMB) as required by Executive Order 12866.[1] The ATA submitted Recommendations for Future Hours of Service Rules to the DOT two weeks later on December 15, 1999. The ATA proposed that the agency "… issue a notice of proposed rulemaking and ultimately a final rule based on the ATA recommendations." The ATA stated that its proposal was based "… on sound science, public safety and the needs of the American economy." The 16th item of the ATA recommendation stated that "[u]pon publication of the [FMCSA] proposal, ATA should contract with a firm to analyze the government's cost/benefit analysis, and if warranted, conduct its own cost-benefit analysis for comparison."

The ATA addressed its recommendation both to the Secretary of Transportation and the OMB director. The agency had already considered and analyzed five alternatives it believed were reasonably feasible to implement. The

[1] OMB Office of Information and Regulatory Affairs Internet page for "Regulations Pending and Reviews Completed Last 30 Days" dated 08 Dec 99.

agency chose not to withdraw its draft NPRM from review at OMB to add a sixth ATA alternative and delay the draft NPRM further. The OMB approved the agency's draft NPRM for publication on April 24, 2000.

Notice of Proposed Rulemaking

On May 2, 2000, FMCSA published an NPRM covering a comprehensive revision of the HOS regulations (65 FR 25540). The FMCSA received and transcribed 700 comments at eight nationwide public hearings in May, June, and July 2000 and placed these comments in the docket referenced at the beginning of this document. After holding the first seven public hearings , the agency identified several recurring themes and issues that warranted additional stakeholder and public discussion. The agency conducted three two-day public roundtable discussions in September and October 2000 in Washington, D.C. for that purpose. A transcript of each day of the public roundtable discussions is also in the docket. The FMCSA extended the comment period for the May 2000 NPRM twice, first to October 31, 2000, and then to December 15, 2000. The FMCSA has recorded more than 53,750 written (paper and electronic submissions to the docket) and transcribed oral comments in response to the May 2000 NPRM.

Comments to the NPRM

General Overview

The comments to the May 2000 proposal reflected widespread recognition of the enormity of the undertaking, and many commenters, even those strongly opposed to the NPRM, acknowledged the difficulty in sifting through the data and presenting the issues. The hearings gave many an opportunity to express themselves on a variety of issues. The roundtable discussions provided an opportunity to focus on the specific major issues mentioned at the hearings and helped some commenters to explain their reasons for opposing or supporting the NPRM. The reactions of many commenters reflected apprehension about the effects on their jobs, earnings, businesses, method of operation, competitive status, and protection from what they perceived to be a drastic change from the status quo.

The generally unfavorable comment and reaction to the NPRM led to expressions of Congressional concern regarding any short-term effort to promulgate a final rule. The FY 2001 DOT Appropriations Act, Pub. L. 106-346, prohibited the agency from moving to a final rule during that year. The FY 2002 DOT Appropriations Act, Pub. L. 107-87, prohibited promulgation of a final rule dealing with any of the HOS exemptions in the National Highway System Designation Act of 1995, Pub. L. 104-59, Sec. 345, 109 Stat. 568, 613 (NHS). This action reflects careful consideration of the concerns expressed by members of Congress as well as the more than 53,000 comments to the docket.

Use of an Independent Consulting Firm

The National Safety Council (NSC), American Bus Association (ABA), American Trucking Associations, Inc., and Distribution and LTL Carriers Association (DLTLCA) petitioned FMCSA to retain an independent consulting firm to study the safety and economic impacts of any next action. The DLTLCA believed "that such an approach, used previously by DOT in the prior proceeding on these hours-of-service rules , is in the interest of all the participants, FMCSA, and the public."

FMCSA Response:

The FMCSA has chosen to grant this petition. The agency hired an independent consultant who performed an exhaustive analysis of several regulatory alternatives, described below.

Use of Science

Numerous trucking industry commenters applauded the agency for its attempt to use science as the basis for HOS reform. Although these commenters found little on which to disagree with the agency about the actual research into the science of fatigue, they consistently faulted the agency for the way it applied that science in the real world. They commented that the proposed rules lacked the flexibility necessary to apply the science in an operationally practical manner. The industry position was perhaps best summed up in the comments of the National Private Truck Council (NPTC). "While the fatigue research may confirm that people do get tired, and that they can become more tired between midnight and 6:00 a.m., this must be weighed against the result of pushing nighttime runs into daylight hours."

The trucking industry also found much to disagree with regarding the analysis of the accident and compliance data used by the agency to justify many of the provisions of the proposal.

The ATA found little support for the agency's position that the proposed rules would save 755 lives annually once industry adhered to the proposal fully.

The ATA repeatedly cited crash statistics of the National Highway Traffic Safety Administration and FMCSA showing fatigue to be a factor in no more than five percent of fatal accidents involving trucks.

The ATA referred to work done by the Michigan State Police in conjunction with the University of Michigan to try to isolate causes of fatal truck crashes in Michigan. They identified 267 truck-involved fatal crashes from 1966 to 1999, 72 of which were determined to be the fault of the truck driver. They stated only five of those 267 crashes, or 1.8 percent, were attributable to fatigue.

The National Association of Small Trucking Companies (NASTC) commented that fatigue is a "naturally occurring phenomenon" and man has been provided with naturally occurring defenses, which he has to manage. NASTC believes the agency ought to rely on promoting fatigue management alternatives rather than trying to regulate what is probably individual to each person.

The industry was also critical of the FMCSA for failing to do enough research into the safety consequences of shifting considerable nighttime truck traffic to the daytime.

Several enforcement agencies including the New York State Police applauded FMCSA's effort to utilize sleep research data in developing new rules to combat driver fatigue. It cautioned the agency, however, against placing total reliance "on the data obtained through this research since this data is certainly open to interpretation."

The American Automobile Association (AAA) found positive attributes in the proposal. The AAA believed the proposal represented a significant effort to draft science-based HOS regulations. The NPRM, it said, provided a workable framework taking into account science and expert opinion in areas of sleep research and traffic safety.

The AAA, however, believed the agency had misapplied some of the scientific findings. The AAA also stated the proposal should focus on where "we know we have a problem." The AAA believed long haul, over-the-road drivers face challenges that could benefit from improved work/rest practices. The AAA pointed to the Hanowski, Wierwille, Garness, Dingus study Impact of Local/Short Haul Operations on Driver Fatigue (2000), Report No. DOT-MC-00-203, a

study that had not been completed before the proposal. This study concluded that fatigue may be less problematic for local/short haul drivers, as they are more like workers in non-driving professions than long haul drivers. The AAA strongly recommended that the agency reconsider those parts of the proposed rulemaking that would apply HOS requirements to industries where there is no demonstrable evidence that driver fatigue results in accidents.

The American College of Occupational and Environmental Medicine (ACOEM) also had a cautionary message. Noting that fatigue is an important issue, not only for safety, but also for productivity, the ACOEM observed that occupational medicine's prime job is matching the interface of the worker with the workplace, and then understanding that interface. There is a tremendous amount of research in this area, but it is relatively young, only 20 to 30 years old. The ACOEM found that taking the science and making it operational, as in scheduling, is quite challenging and questioned the value of regulating driving schedules as the fatigue problem is much more complex. The ACOEM recommended deferring further action on the proposal until more information is available.

The National Sleep Foundation (NSF) was very supportive of the proposal. It cited the three general principles in its Policy Statement of February 2000 anticipating the publication of the proposed rules:

> New regulations must be based on current scientific research and understanding regarding fatigue and driver performance.
>
> An effective system to manage fatigue should include prescriptive regulations that can be monitored and enforced by compliance officers and, above all, provide adequate rest periods with reasonable, responsible limits on driving.
>
> HOS rules alone cannot regulate driver fatigue and alertness. Ultimately, it is the shared responsibility of all interested parties to develop a system that helps promote proper fatigue management through education and training.

The NSF concluded, "Where science is clear, we state the proposed rules conform to the best available science. Where science is less well developed, we state the proposed rules represent a reasonable balance between operational considerations and broad principals of sleep practice." (sic) It also noted that the proposed rules tracked closely the NSF's policy statement and the Expert Panel's recommendations, and that they provided significant improvement over the current rules.

The Insurance Institute for Highway Safety (IIHS) mentioned several drawbacks in studies trying to link fatigue to crashes. IIHS stated that one cannot calculate fatigue-related crashes by looking at police reports or National Automotive Sampling System (NASS) reports because they will always understate fatigue. IIHS believes the correct method, called "population percent attributable risk calculations," is to take the increased risk of crashes from driving longer hours and to put that into a formula together with the rate of drivers driving longer hours.

Many commenters urged the use of pilot studies to test some of the rules before generally mandating them on the industry. There was particular interest in piloting the use of on-board recorders.

There was also interest in developing a more holistic approach to the fatigue problem through the use of education and training programs, and screening for sleep apnea and other sleep disorders. This was usually mentioned in the context of fatigue management.

FMCSA Response:

There was no serious challenge to the scientific findings that human beings are subject to a circadian, biological clock of about 24 hours, which controls the natural wake/sleep cycles. Nor was there any serious doubt about the science concluding that humans require about eight hours of restorative sleep daily and that a longer off-duty period than currently required is necessary so that the needed sleep can be obtained. The studies citing police accident reports for the causal factors consistently show a lower proportion of crashes with fatigue/drowsiness as a causal factor than do detailed studies of crash causation.

The agency sought to develop rules that were science-based. It did not promise rules that were science-"controlled" to the point of being completely impractical in operational environments.

After the agency completed reviewing the 53,000 comments, including the hearing and roundtable transcripts, it began deliberating whether all the provisions of the proposal continued to be feasible.

Discussion of Specific Issues of Concern to Commenters

The agency will discuss the comments received in the docket about each of the following issues: categories of operations; passenger carrier operations; NHS exemptions; sleeper berth requirements; carrier notification of drivers during their off-duty hours; daily work/rest cycle; 24-Hour work/rest cycle; daily off-duty time; daily on-duty time; daily driving time; distinctions in duty time; weekly or longer cycle; weekly recovery periods; restarts; short rest breaks during a work shift; economic impacts; electronic on-board recorders; proposed compliance and enforcement; and regulatory impact analysis.

Categories of operations

The FMCSA proposed a categorization of motor carrier operations intended to address the diversity of the industry. The NPRM proposed five types of operations, into which most motor carriers subject to federal jurisdiction would fall. For each category a separate set of duty restrictions was proposed for the drivers in that type of operation. Types 1 and 2 were intended to cover all long-haul drivers, i.e., national and regional operations, respectively. The remaining three types were intended to include the various practices of local operations. The agency proposed the additional requirement of electronic on-board recording (EOBR) devices to monitor drivers in Type 1 and 2 operations, while reducing the paperwork burden for most local operations. Type 3 was intended to cover local split shift drivers who spend most of their on-duty time driving, but most are local (or home-based), and their driving shifts are generally separated by several hours. Type 4 was intended to cover drivers who work in the vicinity of their normal work reporting location, have regular schedules extending less than 12 consecutive hours from the time they report in until they check out. Driving would have been a significant part of Type 4 drivers' work, more than half of their on-duty hours. Drivers currently operating under the 100 air-mile radius exception in 49 CFR 395.1(e) would have been considered Type 4 drivers, and would have been absorbed into this category, eliminating the need for that exception. The FMCSA also intended that most existing exemptions would be absorbed into one of the local types of operations, primarily Type 5, to reduce the need and the demand for individualized exemptions.

The comments from industry on the categories of carrier operation were generally unfavorable. While many comments applauded the agency's efforts to remove the "one size fits all" concerns about existing regulations, most stated the proposal missed the mark. The National Private Truck Council's (NPTC) comments perhaps best captured the industry perception: "It's true that one size does not fit all, but neither should the agency decide how many sizes there are nor anticipate how many sizes there will be in the future."

The most consistent objection from motor carriers was that the proposed categories unnecessarily complicated regulation for both the industry and for enforcement.

Many carriers expressed concern that they had trouble finding the type that best described their operation or that their operations spanned more than one type, and sometimes as many as four. When a driver's duties changed from one type to another within a workweek, there was much confusion about whether the proposal required a "weekend" to intervene, whether EOBRs would be required for a single run, and which daily or weekly limitations applied. Uniformly, however, comments stated that some productive time would be lost in the transition.

The industry comments did not offer significant advice as to whether a better defined classification system was preferable or workable.

Industry commenters did not seem uncomfortable with the concept of "long-haul" trucking, as that is a common term and generally associated with freight movements over a considerable distance, as opposed to local service. Comments, however, did have difficulty with some of the other distinctions used in the NPRM.

Nearly all of the local carriers responding found some problems with the attempted classification, often calling it confusing. However, many found the effort to be supportive of their persistent attempts to secure broad exemptions from HOS regulation for their type of operations.

Types 3, 4, or 5 drew much attention from the other-than-long-haul sectors, but a major focus of many comments was why the rules could not or should not apply to their particular circumstances. Many noted that their operations might fit into Type 4 but for the occasional trips that take more than 12 hours or may require an overnight stay by the driver, while others found Type 5 more accommodating but could not fit because of an unexplained exclusion of for-hire carriers.

Comments from the enforcement community stated that classification by type would only create confusion and make their jobs at the roadside more difficult and time-consuming.

Public interest groups gave little attention to the general concept of classification and focused rather on the particular restrictions and obligations that were tied to each of the operations.

FMCSA Response:

This final rule establishes a uniform set of regulations for all cargo-carrying operations while allowing passenger-carrying operations to continue under the current rules. In addition, Congressionally-mandated and historical exemptions and exceptions are retained. The final rule will not categorize any segment of the industry in the manner that the NPRM proposed. The agency believes the rule strikes a balance between uniform, consistent enforcement and the need for operational flexibility.

The FMCSA developed the categorization proposal to improve safety based on calculated risk, to respond to "one size fits all" criticism, and to reflect the diversity of the industry. The primary purpose for the categories was to address the highest risk, long-haul operations, so that those operations with the least risk of serious crashes would not be required to alter their operations.

Comments from across a spectrum of stakeholders found the proposed categorization did not work for a multitude of reasons. The comments have shown that the categories created confusion, problems for enforcement, and did not fully meet the objective of accommodating the diversity of the industry. The distinction between an over-the-road truck driver and a local truck driver, however, had fairly broad acceptance among the motor carrier commenters using trucks. The agency's own research associated a significant portion of the fatigued commercial driver problem with the long-haul operation of tractor-trailer or tractor-semi-trailer combinations. For these reasons, FMCSA has decided to drop the categories proposed in the NPRM.

Passenger carrier operations

The proposal made no separate provisions for operators engaged in the transportation of passengers. The current rule also makes no separate provisions for such operators. The FMCSA had no basis to conclude that fatigue affects passenger carrier drivers differently than truck drivers. Thus, the agency believed the same HOS rules should apply. The NPRM recognized certain distinct characteristics in motorcoach operations by proposing different types of trips for which various restrictions would apply. The Type 3 category was meant to accommodate some tour operations and commuter bus services. Motorcoach industry associations, individual carriers and the Amalgamated Transit Union (ATU), representing intercity bus drivers, filed extensive comments, and participated actively in the public hearings and roundtable discussions. The reaction from the motorcoach industry to the proposal was disappointment with the proposed rules in general and more particularly with the agency's failure to recognize the difference between driving a bus and driving a truck.

The Conference Report for the 2001 DOT Appropriations Act contains the following reference to this issue:

> Motorcoach driver fatigue. The conferees note that the agency acknowledged in its NPRM on hours-of-service that little is known about the operations of over-the-road buses and motorcoachs. The conferees state that there should be additional study of the operations, driver practices and driver fatigue issues specific to over-the-road buses before any revisions to the existing trucking hours-of-service rules are finalized, and encourage the Secretary to conduct such studies to inform additional regulatory proposals in this area. See H. Conf. Rept. No. 106-940, 106th Cong., 2d Sess., p. 113 (2000).

The American Bus Association (ABA), the United Motorcoach Association (UMA), and other motorcoach, convention, and tour associations, ATU, NSC, and CVSA urged the agency to not subject passenger transportation to the proposed rules, thus allowing them to continue to operate under the currently existing rules. Among the reasons given for their request taken from the ABA comment:

(1) There is no scientific, statistical, or other evidence to support changes for bus drivers;

(2) Commercial passenger vehicles are operated in an environment entirely different from commercial freight carriers;
(3) The exemplary safety record of the industry will be compromised by the proposed rules; and
(4) The economic impact will be devastating.

The ABA agreed with other critics questioning the agency's estimate that 15 percent of truck-involved fatalities are caused by the fatigue of the commercial vehicle driver.

However, the ABA asked what part of that 15 percent was supposed to be related to bus transportation. According to the ABA's review of the Fatality Analysis Reporting System (FARS), an annual average of 42.5 fatalities was attributable to crashes involving intercity buses, which the ABA disputed due to definitional problems. Even taking these data, ABA stated that 15 percent of 42.5 amounts to less than 7 fatalities per year. The ABA argued the commercial passenger carrier industry averaged 0.01 passenger fatalities per 100 million passenger miles for 1995 through 1997 and asserted that this ranked well below the rate for rail and air passenger transportation at 0.04 passenger fatalities per 100 million passenger miles (from Industry Facts 1999, NSC, p. 122.)

The ABA also pointed out the significant differences, both operational and mechanical, between buses and trucks that would undermine the agency's basis for the proposed revisions.

In its comments, the ABA pointed out that all intercity bus drivers are paid by the hour and run on preset schedules, thereby eliminating any incentives to violate the present HOS restrictions.

The ABA cited section 408 of the ICCTA for the proposition that DOT is required to consider the economic vitality of the motor carrier industry in its regulation of motor carriers, drivers, and CMVs. The ABA claimed that FMCSA had made no attempt to assess the cost of this proposal to the motorcoach industry and asserts FMCSA had failed to meet its obligations under controlling law and policies.

The ABA reiterated most of the ATA and other commercial freight carrier associations' criticisms of the agency's cost/benefit analysis. It cited the ATA's submission to the docket of the Center for Regulatory Effectiveness' (CRE's) The CRE Report Card on DOT's Proposed Rule on Hours of Service For The Motor Carrier Industry, listing 62 legal and other procedural requirements that it believes the FMCSA must use.

The National Tour Association claimed that never in 20 years have its members experienced so much as a minor injury due to a motorcoach accident. Motorcoach travel, in their opinion, is the safest form of commercial passenger travel, and the NTA argues there is no justification for regulating bus and truck operations together. Of the 150 studies cited in the preamble, NTA argued that none deal with bus drivers. The NTA stated the proposal would only cause increased costs and heartache for the bus industry with no safety benefit; in fact, they stated that the opposite effect is more probable. The proposal, according to NTA, was simply unnecessary and unfair.

The Convention and Visitors Association, which promotes the Washington, D.C. area as a primary tourism destination, commented that about one-third of all visitors to the Washington, D.C. area arrive by motorcoach. It estimated that the Washington area would lose 20 percent or 1.5 million visitors because of the inconsistency between the provisions of the proposal and the way the tour bus industry actually operates.

National School Transportation Association (NSTA) members provide transportation services to public school districts and private schools nationwide. Noting the specific exemption from 49 CFR parts 387 and 390 through 399 for transportation of pupils from home to school and school to home, the NSTA observed that school transportation nearly always includes school activity transportation as well. Strict adherence to the proposal would cause a disruption in current operations and could result in a shortage of available drivers. If school bus companies could use their regular route drivers to provide activity transportation, they could not service their contracts, because more drivers are simply not available. The NSTA recommended that all school bus drivers be held to the same standard, whether public or private, because they do the same things. It also recommended a separate category for school bus operations, and suggested that the FMCSA convene a roundtable discussion devoted to this issue. That would allow all issues to be worked out consistent with safety and economic practicality.

CVSA stated the agency must conduct medical and performance research on the bus and motorcoach industry to validate (or invalidate) the position in the proposal. It argued that basing such sweeping rule changes on assumptions that are not substantiated is not prudent public policy.

The NSC stated that the intercity motorcoach industry should be excluded from the HOS proposal. NSC asserted that the statement that the agency has "assumed that bus drivers operate in ways similar to truck drivers" was questionable for a rule purported to be based on "sound science" and underscored the agency's lack of understanding of the motorcoach industry's unique operating characteristics. NSC further stated there is no safety evidence to support including the motorcoach industry in the proposed changes.

FMCSA Response:

The FMCSA is persuaded by comments that it does not have enough data to indicate a problem in the motorcoach industry segment and is not adopting any new rules for motorcoach drivers in this final rule. The FMCSA may consider the feasibility of other alternatives to reduce fatigue-related incidents and increase motorcoach driver alertness in the future.

The FMCSA relied on four motorcoach studies in the NPRM, three completed by the FMCSA's predecessor, the FHWA, and one from Australia. See:

(1) Strategies to Combat Fatigue in the Long Distance Road Transport Industry, The Bus and Coach Perspective, 1993, Australia Transport and Communications' Federal Office of Road Safety;

(2) A Study of the Relationships Among Fatigue, HOS, and Safety of Operations of Truck and Bus Drivers, 1972, Harris, et al.;

(3) Effects of HOS Regularity of Schedules, and Cargo Loading on Truck and Bus Driver Fatigue, 1978, Mackie, Robert R., and Miller, James C.; and

(4) Critical Issues Relating to Acceptance of CVO Services by Interstate Truck and Bus Drivers, 1995, Penn + Schoen Associates, Inc.

In addition, the FMCSA is nearing completion of the study required by the Conference Report for the 2001 DOT Appropriations Act. The agency is reviewing the draft final report. The FMCSA is not adopting any changes today because: (1) the agency has not yet confirmed that the new study had been designed correctly, that the process used could meet scientific scrutiny, and that the conclusions reached are reasonable; and (2) the public has not had the

opportunity to review and comment on the study. When the study is approved, the agency will publish it and consider whether non-regulatory actions or regulatory revisions may be needed.

NHS Act Exemptions

The FMCSA hoped that categorizing operations would reduce the continuing demand for exemptions from the HOS regulations. In the NPRM, the agency noted that creating the Type 5 operation, Primary work not driving, would remove the need for special exemptions. This category was intended to include the various utility service workers, construction equipment operators, environmental remediation specialists, oilfield service workers, water well drilling operations, mobile medical equipment drivers, driver-salespeople, as well as other specialized driving operations.

Congress became involved in the consideration of exemptions, culminating in Sec. 345 of the NHS Act where it mandated exemptions from all of the HOS provisions of the Federal Motor Carrier Safety Regulations (FMCSR) for those individuals transporting crops and farm supplies during planting and harvesting seasons and partial relief from the 7 or 8 day HOS limit for groundwater well drilling, construction, and utility service vehicle operations of motor carriers. A fifth provision allowed States to exempt from the commercial driver's license (CDL) regulations employees of towns with a population of 3,000 or less who are called to drive snow plows or salting/sanding vehicles when the regular CDL holder is unavailable or needs assistance. With respect to all, except the groundwater well drilling exemption, the Secretary was authorized to prevent, modify, or revoke each exemption after a rulemaking proceeding upon a determination that the exemption was not in the public interest and would have a significant adverse impact upon the safety of commercial motor vehicles. Under the terms of the statute, two of the exemptions were to take effect immediately, and the other three within 180 days of the date of enactment.

On April 3, 1996, the agency published a final rule codifying the NHS Act exemptions [61 FR 14677]. This rule deferred any rulemaking action concerning whether to modify or revoke any exemption.

The FHWA received a petition on July 3, 1996, from the Advocates for Highway and Auto Safety (AHAS), which, citing the statement in the April 3 notice that the agency had "decided not to proceed with such a rulemaking proceeding at this time," sought to have the agency reconsider the exemptions. The FMCSA granted the AHAS petition.

The FMCSA noted its intention to modify 3 of the 4 NHS-legislated HOS exemptions in the NPRM. In addition, the FMCSA proposed narrow definitions for terms used in the legislation that Congress had not defined. The FMCSA had been interpreting the terms narrowly since April 1996. The NPRM was intended to assist law enforcement officers by explaining exactly what the definitions were for certain terms, such as "agricultural commodities" and "farm supplies," based on the agency's narrow interpretations of the terms used.

Except for the agricultural exemption, which was a general exemption from all HOS regulations for certain agricultural operations in a limited geographic area during planting and harvesting seasons, the exemptions granted were in the form of a 24-hour restart of the 60- or 70-hour restrictions. In creating the Type 5 operational category, the FMCSA's intent was to accommodate all existing 24-hour restart exemptions. The ICC first allowed a 24-hour restart provision for drivers of specially constructed oilfield servicing vehicles on April 13, 1962. It did not discuss the safety or economic impacts in its decision, see 89 M.C.C. 19 and 27 FR 3553. It should be noted that the FMCSA intended that the proposed 32-hour period would operate as a "restart" of a workweek with respect to Type 5 operations.

However, associations and individuals representing agricultural transporters, the construction industry, utility vehicle operators, oil-well drillers and other operations that currently have a 24-hour restart provision stated that FMCSA's proposal to use Type 5 as a catch-all for current exemptions simply did not work. Each segment had its own operational idiosyncrasies, many duty schedules in split days off, but more often in unpredictable demand, making it, in their view, impractical for them to use not only Type 5, but also any of the other types proposed.

For-Hire Trucking

The ATA made several arguments against the NPRM's treatment of exemptions or exceptions. First, it contended that several exceptions (in addition to those created by Sec. 345) have been in place for years, and that carriers have built their businesses around them. To summarily remove them without any supporting evidence would create substantial hardship.

Second, it noted that some of the exemptions were granted by the NHS statute with a required procedure for eliminating or modifying them. The ATA alleged the FMCSA failed to follow the required procedures.

Third, it asserted that requiring the states to adopt the proposed federal requirements, eliminating even State exemptions within three years, was unreasonable and unnecessarily interfered with State discretion. The ATA addressed each of the exceptions or exemptions currently in the regulations.

Associations and Carriers That May Have NHS Act Sec. 345 Subject Operations

The Agricultural Retailers Association (ARA) stated that although farming and related supply businesses operate year round, their busiest time is during planting and harvesting seasons. During those times, which are defined by State law, many farmers and suppliers are eligible for an exemption from the HOS regulations under Sec. 345 of the NHS Act.

The ARA commented that most drivers operate locally, on farm roads, and sleep at home every night. Although pleased that the agricultural exemption was to be retained, the ARA commented that the proposal appeared to negate the exemption. The ARA recommended that certain language be deleted.

The ARA also pointed out an apparent inconsistency between the proposed regulatory language and the section-by-section analysis. Both refer to the "weekend" provision and when it would apply to drivers, including agricultural exempt operations. One said "more than five consecutive days" and the other said "more than three consecutive days." ARA stated both were in error because they would require a driver and truck to be idled for up to 56 hours merely because a driver completed a task at a farm taking three or five days. It recommended the number of exempt driving days requiring a "weekend" rest period be set at seven.

The Agricultural Transporters Conference (ATC) stressed the importance of servicing crops at appropriate times, a situation ATC argues is analogous to emergencies. ATC members have been operating under the NHS exemption since 1995 and believe there is no evidence that safety has been compromised. ATC stated that the agriculture definitions in the NPRM are too restrictive and that problems will inevitably arise. For example, a supplier's driver delivers anhydrous ammonia to the farm, applies it to the fields, and then stops at a wholesaler to fill his tank on the way back to the supplier's yard. He would be exempt on the delivery, but not on the pick up.

The Forest Resources Association (FRA) wanted loggers and other forest harvesters to be allowed to operate under the agricultural exemption. According to FRA, its members' drivers deliver 86 percent of all raw forest products consumed in the United States. The FRA commented that drivers typically deliver three loads a daywith an average round trip of 126 miles, well within a 100 air-mile radius.

The National Rural Electric Cooperative Association argued that the NPRM did not meet the statutory requirement in Sec. 345 for modifying the exemptions through rulemaking.

The Edison Electric Institute suggested that the FMCSA look to State and local experience for the handling of small, local emergencies like power failures.

Qwest, a private motor carrier, claims that its crash rates are low and that it has experienced no rise in crashes when it increases a driver's time on-duty. In the past, Qwest claims it has worked drivers extra hours pursuant to the emergency exemption of the current HOS rules. On those occasions, Qwest claims it has had no increased crash rate. Qwest also finds no significant difference in its crash rates in States that afford it HOS exemptions as opposed to those that do not. Qwest contends this is evidence that utility service drivers do not present a highway safety risk sufficient to justify HOS regulation. Qwest sought an exemption for telephone line repair drivers, who operate mostly under emergency conditions.

Special Operations

The basic position of the Associated General Contractors (AGC) was that construction industry truck drivers operate under conditions that do not lead to fatigue or alertness problems and that HOS regulations for them are unnecessary. AGC contends that the current regulations were designed for over-the-road drivers, and that Congress recognized this in 1995 by providing the construction industry with a 24-hour restart provision in the NHS Act. AGC argues the FMCSA is seeking to undo what Congress had directed it to do. AGC argues that Congress, in the 1998 reauthorization of the national highway program, increased funding by 44 percent, recognizing the need for infrastructure improvements. The FMCSA's proposal, by placing unnecessary restrictions on construction operations, would threaten to undercut that mission.

Private Carriers of Freight

The PMAA commented that the FMCSA treated the agricultural exemption too narrowly, defining "farm supplies" to mean only those products "directly relating to farming activities of planting, fertilizing, and harvesting crops that are delivered directly to a farm." The fuel demands of farmers during the planting, harvesting and crop-drying seasons only add to the constant demands of other consumers. This places a great strain on the workday of typical drivers, because of long delays at the terminal rack.

The PMAA argued that FMCSA: (1) need not preempt the ability of States to manage these matters; (2) should allow intermediate deliveries to be covered under the exemption; and (3) should permit longer workdays during critical seasons.

Safety Advocacy Groups

The AHAS determined that it could not support the agency's proposal to eliminate the NHS exemptions through use of the Type 5 driving category because the absence of an EOBR requirement would prevent adequate monitoring and enforcement. It argued that the substituted regime of a 78-hour week with only 32 hours off before the next week begins was excessive and that enforcement problems would allow even these liberal limits to be exceeded. In effect, AHAS said the agency would extend NHS-type exemptions to all construction operations, even beyond 50 miles, without sufficient opportunity for comment. The agency's approach to eliminating NHS exemptions appeared to deregulate construction and utility operations. Finally, the elimination of the Tolerance Guidelines as proposed in the NPRM would effectively require States to increase current driving limitations from 10 hours to 12.

The AHAS recommended that the agency treat construction and agricultural exemptions in a separate rulemaking, which would better conform to the requirements of the Administrative Procedure Act.

FMCSA Response:

There are no data on fatigue that support either the 24-hour restart provisions for oilfield, construction, ground water, or utility carriers, or the total HOS exemption for agriculture provided by Sec. 345. The NPRM proposed modifying the 24-hour restart into a restart provision of between 32 and 56 hours, depending on when the period began. The agency cited data that did support a 32-hour restart provision. The agency's expert panel verified that data.

The NPRM gave AHAS the opportunity to present its case that modifications for the NHS exemptions were necessary. AHAS did not provide any data.

The NPRM treated the agricultural exemption narrowly, as the agency has done with all the NHS exemptions in interpretations and opinion letters since 1996. Congress did not define the terms for which FMCSA proposed definitions; the agency believes it must define the terms narrowly to maintain safety and prevent abuse. The FMCSA, however, will take no actions contrary to the statutes on the matter of NHS exemptions.

Sleeper berth requirements

The appropriate use of sleeper berths to obtain required rest and avoid the accumulation of sleep debt became an issue because of the NPRM finding that drivers need about ten consecutive hours within which to obtain the necessary seven to eight hours of daily sleep. The sleeper berth exception in the current rules allows a driver to accumulate the required eight (otherwise consecutive) hours off-duty in a sleeper berth (that meets the requirements of 49 CFR 393.76) in two periods totaling at least eight hours, neither period being less than two hours.

Studies on the sleeper berth issue have generally found that, for a number of reasons, sleeping in a berth, particularly when the vehicle is moving, is less restorative than sleeping in a bed. The agency has recently released a study begun after it developed the NPRM: Dingus, Neale, Garness, Hanowski, Keisler, Lee, Perez, Robinson, Belz, Casali, Pace-Schott, Stickgold, Hobson, (2002), Impact of Sleeper Berth Usage on Driver Fatigue, FMCSA Report No. FMCSA-RT-02-050. This study concludes that sleeping in a moving vehicle impairs the quality of rest. Some studies also have determined that drivers using sleeper berths had a higher crash risk than drivers obtaining their sleep in a bed. The agency's Expert Panel, who reviewed the feasible alternatives during development of the NPRM, recommended that until there was more definitive information available on the relative quality of sleep in a berth, drivers using sleeper berths should be afforded a greater opportunity to obtain additional rest. The FMCSA proposed that only team drivers be

allowed to use sleeper berths to split their accumulated required off-duty time, and then only in periods of not less than five hours each. Single drivers would use the sleeper berth during one block of off-duty time.

A study by Abrams C., Shultz, T., & Wylie, C.D. (1997) Commercial Motor Vehicle Driver Fatigue, Alertness, and Countermeasures Survey indicated that drivers using sleeper berths reported averaging about six to seven hours at a stretch in the berths. Other industry surveys indicated that drivers reported averaging about four hours at a stretch in the sleeper berths. An ATA survey showed that only five percent of team drivers use the sleeper berth while the vehicle is in motion. An Owner Operators Independent Drivers Association (OOIDA) survey showed that number to be higher, 11 percent.

Motor Carriers

The industry proposed that drivers with conforming sleeper berths be permitted to split the required ten consecutive off-duty hours into two non-consecutive periods, the duration of each to be determined by the drivers. The industry believes that given the fact that the driver must accumulate 10 hours off duty in a 24-hour period, drivers ought to be able to determine the length of the two separate periods. The industry believes drivers are in the best position to know how much rest they need at a particular time. For example, the driver could combine one long sleep period of six or seven hours with one separate, shorter extended rest period of three or four hours to augment the longer sleep. The industry proposed that off-duty time taken immediately before or after a sleeper berth period may also be counted toward the accumulation of the required ten hours off duty. They stated that this merely carries over what is presently permitted under the existing rules, and affords the driver the flexibility to maximize sleep and rest time. Finally, the industry recommended that time spent in the passenger seat, presumably even while the vehicle is in motion under the control of a co-driver, be counted as off-duty time and be credited toward the accumulation of the required ten hours. This passenger-seat time would be subject to the restriction that it must immediately precede or follow sleeper berth time. The rationale is that a driver may need time merely to relax without sleeping before or after his sleep period.

Comments from industry were uniformly in favor of retaining the sleeper berth provision for all drivers, solo and team. The carrier associations, large and small, individual carriers, owner-operators, drivers and unions all found the proposal regarding sleeper berth use unreasonably restrictive. The larger carriers lined up behind the ATA recommendation, and the smaller carriers and the owner-operators sounded similar themes. In fact, the OOIDA questioned why sitting in a jump seat could not be combined with sleeper berth time to accumulate the required rest period. What difference is there, OOIDA asked, between a driver lying awake in a sleeper berth, who cannot sleep, and a driver sitting in the jump seat reading or listening to the radio?

The ATA argued that the proposed sleeper berth provision is inconsistent with available science. It stated that the FMCSA has acknowledged a gap in the current research on sleeper berths and that more research is required. ATA argued the proposal even seems to contradict the recommendation of the agency's Expert Panel. The ATA stated that science indicates that a combination of a long period with shorter period is better than the proposed split of five and five. The ATA was also critical of the agency's failure to gauge the economic impacts of such a rule change.

Truckload carriers stated that the nature of the long-haul, irregular-route business makes the elimination of split sleeper berth time a major concern because it removes the needed flexibility from the driver.

Similar positions were taken by the LTL sector, noting that drivers must have the ability to manage their work/rest times more freely, including sleeper berth time. Examples were given of drivers managing sleeper berth time to get to the shipper location early and avoid traffic.

Citing research finding that drivers sleeping in sleeper berths while the vehicle was in motion obtained less restorative sleep than those sleeping while the vehicle was at rest, some commenters said they could not understand the agency limiting the exception to team drivers. Although not mentioned in the proposed rule, some found it necessary to ask whether the exception for team drivers would apply to sleeper berth time acquired while the vehicle was in motion. Others found that even the team driver exception was confusing. Still others looked for data supporting a minimum period of five hours.

Many small carriers and owner-operators stated that drivers using sleeper berths need less than the ten consecutive hours proposed in the NPRM. They do not have to travel any distances to get to their sleeping quarters; they just have to climb into the back. Many also strenuously opposed the treatment of sleeper berth time in the proposal, seeing it as discouraging the use of sleeper berths. In their view, the berths are a valuable resource, readily available to the driver to get necessary rest, and their use should be encouraged. OOIDA recommended the agency retain the present sleeper berth exception to the consecutive-hours requirement.

The International Brotherhood of Teamsters (IBT) took issue with the findings of the studies on effectiveness of sleep in a berth. They argued that the determinative factor was not the quality of the accommodations, but rather environmental conditions, like noise levels.

Safety Advocacy Groups

Safety advocates applauded FMCSA for prohibiting split sleeper berth periods for solo drivers and recommended extending the prohibition to team drivers as well. The NSC, however, cautioned the FMCSA to await further scientific data before proceeding one way or another. The AHAS stated that some research studies indicate the restorative benefits of napping are not entirely clear, but conceded that more napping is better than less napping.

Law Enforcement

The CVSA stated the regulations should provide sleeper berth flexibility for both short-term naps and longer sleep periods.

FMCSA Response:

Because of the comments and the new studies released after the NPRM's publication, the FMCSA has decided to retain the sleeper berth exception. The agency, however, will modify the off-duty period to align with the new off-duty period adopted in this final rule.

In the Impact of Sleeper Berth Usage on Driver Fatigue study, the team driving operation highlighted the benefits of reducing drowsiness. Unlike extremely tired single drivers who may have felt compelled to continue to drive even when it was dangerous to do so, the individual drivers in a team operation generally had no similar compulsion to operate the vehicle when they were extremely tired. From the data collected in this study, it was apparent that the team

driving operation translates into fewer bouts of drowsiness, fewer critical incidents, and, in general, safer trucking operations. Critical incidents are those incidents that resulted in a crash because the driver did not perform evasive maneuvers or that would have resulted in a crash, if the driver had not taken evasive maneuvers.

In addition, team drivers appeared to drive much less aggressively, make fewer errors, and rely effectively on their relief drivers to avoid instances of extreme drowsiness while driving. In effect, it appeared as though team drivers undergo a natural "screening" process. This was indicated by a number of the truck drivers during the focus groups conducted earlier in this project. Drivers indicated that team drivers must be both considerate of their resting partner and trustworthy with regard to their driving ability. Thus, the level of "acceptance" necessary to be a successful team driver seems to serve as an effective screening criterion.

On the other hand, single drivers in the study had many more critical incidents at all levels of severity as compared to team drivers. Single drivers were involved in four times the number of "very/extremely drowsy" observer ratings as were team drivers, and were more likely to push themselves to drive on occasions when they were very tired.

Based on the agency's Commercial Motor Vehicle Driver Fatigue and Alertness Study (1996), there were relatively few instances (about 2.5 percent) of "extreme drowsiness," with most of these instances being experienced by single drivers, again with a high rate of the occurrence of this level of fatigue on the second or third shift after the first day of a multi-day drive. Thus, it appears that the combination of long driving times and multiple days provides the greatest concern, with several results pointing to the presence of cumulative fatigue. This means that the length of shifts in the later stages of a trip must also be carefully considered.

Having mentioned this concern, it is important to point out that critical incidents and/or driver errors did not increase directly with the hours beyond the regulatory limits. In fact, there was a substantial decrease in the rate of critical incidents during some of the more extreme violations. However, one should exercise great caution when interpreting these results. For the following reasons, they do not necessarily mean that the HOS should be expanded:

(1) It may be possible that the drivers were making a point to drive more carefully and cautiously because they were operating outside of the regulatory limits and did not want to get stopped by law enforcement officials; and

(2) They may have risked driving outside of the regulations only because they felt alert and knew that they could continue to drive safely.

There were a number of findings in this study indicating that the quality and depth of sleep was worse on the road, particularly for team drivers. Drivers in teams have significantly more sleep disturbances than do single drivers. In addition, for team drivers who sleep while the vehicle is in motion, factors such as vibration and noise adversely affected their sleep, although lighting and temperature aspects of the environment did not appear to be much of a factor.

However, it was found that many of the sleep disturbances that occurred for single drivers could not be attributed solely to an environmental factor.

The NPRM estimated that 90 percent of all long-haul drivers use sleeper berths. Although the proposed rule would not have prohibited the use of sleeper berths, it would have diminished their flexibility by requiring single drivers to have one uninterrupted rest period of at least ten hours duration every 24 hours. As pointed out in the comments, however, the proximity and convenience of the sleeper berth reduces the importance of the length of the uninterrupted period. If a driver obtained seven consecutive hours of sleep immediately in the sleeper berth, it would be unnecessary to require him to remain in that location for an additional three hours. The agency agrees with commenters on these points. This is especially true when those three hours of required rest could be used to better advantage to alleviate fatigue later in the workday. Of course, drivers are free under the rules to take rest breaks at any time, using a sleeper berth or otherwise.

Use of sleeper berths in long-haul operations is firmly entrenched in the practice, culture, and equipment of the trucking industry. This does not mean that the use of sleeper berths should not be reviewed in the interest of safety where a legitimate problem is identified and established as such. It does mean, however, that to do so would require more documented evidence of a safety problem than the agency now has. In light of the agency's recently completed research, the very strong opposition and persuasive arguments presented, the agency will continue to allow single drivers to accumulate their required time off duty in two sleeper berth periods.

The FMCSA has improved the regulatory text to ensure a clear understanding of the sleeper berth rule. The FMCSA has borrowed from and modified the Government of Canada's 1994 Commercial Vehicle Drivers Hours of Service Regulations version of the sleeper berth rule (SOR/94-716, s. 5), because it describes the rule in clearer terms than the wording adopted by the ICC in 1938. Although the Canadian version is clearly better, the FMCSA found that it may prevent a driver from eating in a restaurant either (1) after leaving the sleeper berth and before going on duty, or (2) after going off duty and before entering the sleeper berth. The regulatory text has been modified from the Canadian version to enable a driver to have off-duty time in conjunction with sleeper berth time, which the agency has allowed over the years.

Carrier notification of drivers during their off-duty hours

The NPRM proposed a kind of restart that would be triggered by employers or their agents violating a proposed prohibition against interrupting drivers' off-duty periods. The NPRM proposal was designed to address complaints the agency has received over the years regarding unreasonable calls from dispatchers and other carrier employees that caused drivers to lose the opportunity to sleep. As proposed, such an interruption would start the full interrupted off-duty period over again from the time of the interruption. Therefore, if a driver were contacted at 3:00 a.m. at the end of the sixth hour of his 10-hour off-duty period, the required off-duty period would have to be extended by ten full hours, or until 1:00 p.m. Similarly, if the proposed 32-hour weekly recovery period were in force, and the driver were contacted by the carrier at the end of the 30th hour, the entire 32-hour period would have been required to start over again at that time. This provision was part of the agency's effort to provide a meaningful opportunity for drivers to obtain rest. Although some comments recognized the good intention, most of those commenting on this part of the proposal indicated significant practical and operational problems with such a restriction on communicating with drivers.

Motor Carriers

The ATA recommended that FMCSA retain its current policy allowing brief contacts with drivers during the off-duty period. Under that policy, those contacts are considered de minimis interruptions that do not cause a break in the off-duty period.

Con-Way Transportation Services (Con-Way), a large, non-union LTL carrier, described typical LTL hub and spoke operations, i.e. both line haul and local pick-up and delivery activities. About 80 percent of all runs are prescheduled, but 20 percent vary based on tonnage expected. Carriers maintain a flex-board for on-call drivers, who perform loading and unloading. On a given day, most flex-board drivers would load/unload, but if a run were not available, they would be sent home after three or four hours. If things picked up, they could be recalled to take a run. If they could not be called for 10 hours, Con-Way stated scheduling would become impossible. It argued there has to be a way of communicating with drivers to reflect changes in freight volume or operating conditions.

The NASTC stated that about 15 to 20 percent of the time, truckload operations rely on the spot market for back-hauls and that requires timely notification to drivers or the day is lost to the driver, and the load to the company.

Large and small freight carriers, both truckload and LTL, local delivery operations and construction companies all agreed the proposed rule was too restrictive for practical application. Many offered examples of damaging outcomes to themselves and drivers if the ability to communicate during off-duty hours were denied them. Utility companies found that such a prohibition could not work when emergency situations arise that need immediate mobilization of employees. The general advice offered was: "Do not try to micro-manage off-duty time, particularly where there's no evidence of a problem."

The IBT saw this not as a driver protection provision, but rather as a potential opportunity for mischief by a dispatcher who is having a problem with a driver. By calling the driver a number of times during his off-duty periods, the dispatcher could significantly curtail that driver's availability to work. The IBT stated that there is a better way to fix the problem, agreeing in part with the ATA suggestion to allow brief contacts. At least one driver, however, commented about what he said was a well-documented unsafe practice of keeping on-call drivers awake to protect and preserve the carriers' irregular work schedules. That practice results in on-call drivers going to work already fatigued.

Safety Advocacy Groups

Although commending the agency for providing a longer daily recovery period and preventing it from being interrupted, the AHAS had concerns that the prohibition would be unenforceable, except perhaps as a result of a complaint investigation.

FMCSA Response:

The agency is persuaded that practical enforcement problems preclude moving forward with this element of the proposal. However, as suggested in comments from ATA and AHAS, as well as drivers who have expressed concern in the past, there ought to be a way to deal with unnecessary interruptions. These interruptions while brief in duration have a significant impact on the quality of rest drivers obtain if they occur while the driver is sleeping. Enforcement, however, should always be considered in proposing a prohibition. Communications between a carrier and a driver that causes that driver to lose the opportunity for restorative sleep is a safety issue that falls within the purview of the FMCSA and its state partners. Therefore, FMCSA will continue to gather data to the greatest extent practicable on the degree to which driver performance is adversely affected by these interruptions during the rest period.

Daily work/rest cycle

General concept

The circadian cycle of a 24-hour workday was presented in the NPRM's definition of workday as "any fixed period of 24 consecutive hours," and in the number of hours required to be off-duty combined with allowable on-duty periods. The comments reflected a fairly general agreement across the board that the rules should build on the foundation of a 24-hour day and that the current allowance for 8 consecutive hours off duty was insufficient to assure that drivers had the opportunity to get 7-8 hours of sleep. For example, nearly all of the responding motor carriers and motor carrier associations mentioning this issue agreed that the science clearly supports this change. The safety advocacy groups and the scientific responders enthusiastically supported the proposal to revert to a 24-hour work/rest cycle. The issue of how these on-duty and off-duty periods apply to the proposed five types of operations is reserved for another section. This is not to say, however, that there was a total absence of dissent. As we will see with many of the proposed restrictions, there were some problems in the details, and that the problem usually cited was a lack of flexibility.

The motorcoach industry had little interest in this issue, primarily because it has already absorbed the principle into operating practices. Its basic position is that the industry has adjusted well to the existing rules.

ATA and DLTLCA Recommendations

The DLTLCA filed a petition on November 29, 2000, on behalf of itself and nine other trade associations, including the ATA, which, among other things, presented The Trucking Industry's Hours-of-Service Proposal. The document was described as the product of a 2-year effort by the petitioners' motor carrier members, who had it reviewed by Drs. Mark R. Rosekind and David F. Dinges, noted experts in sleep science, to ensure consistency with the latest safety research. Referring to a 24-hour rest/work schedule, the petitioners said:

> We now know, based on research regarding the circadian rhythm, our bodies function on a 24-hour cycle. The rules should mirror this biological rhythm so that time on and off duty equals 24 hours. The current rules do not adhere to this pattern since they require 8 hours off duty and allow 15 hours on duty. We recommend a 14- hour on-duty period and 10-hour off-duty period.

As discussed above, the ATA had earlier submitted recommendations to the DOT in December 1999 while the draft NPRM was being reviewed at OMB before publication. The ATA championed the concept of a 24-hour work/rest cycle but did not describe their "14 duty hours" as a period limited to 14 consecutive hours.

Regarding the issue of the 10-hour off-duty and 14-hour on-duty components of the 24-hour cycle, the ATA said in its recommendations:

> This is a decrease in allowable work hours from the current rules. When combined with the increased amount of off-duty time (from 8 to 10 hours), a 14-hour on-duty period promotes driver scheduling which mirrors more closely the body's 24-hour clock.

The 1999 ATA recommendations included a daily "flex-time" option, which was not mentioned in the November 2000 DLTLCA multi-association petition. Flex-time would allow drivers to add up to 2 hours to the daily on-duty time no more than twice in any 7-day period, provided at least 48 hours separated the two extended on-duty periods and an amount of extra off-duty time equal to the "extended" time taken within 24 hours. The ATA said it found the "flex-time"

provision necessary to accommodate "certain segments of industry [which] find themselves in a position where a 14-hour workday places the drivers in a position, on an irregular basis, of not being able to complete their assigned tasks." In its docket submittal of December 15, 2000, the ATA, referring to the 24-hour work/rest cycle, merely said: "Work shifts should not be required to begin at the same time each day." It also included the daily flex-time provision, and suggested regulatory language to implement this option.

The ATA cited no scientific source for the following three elements of its proposals:

(1) Extending the workweek to 70 hours in 7 days, all of which could be, but probably would not be, driving time;

(2) An averaging provision allowing drivers to work 140 hours in 14 days by averaging one 84-hour workweek with one 56-hour workweek with a minimum of 34 hours off in between; and

(3) Split off-duty time for sleeper berth drivers, and a limited allowance for combining sleeper-berth time with other off-duty time.

At the second FMCSA "roundtable" discussion on September 28, 2000, the DLTLCA representative hypothesized that the ATA recommended eliminating the distinction between driving and on-duty not driving time, "because as a practical matter, no driver is going to be beyond 12 … we are never going to be beyond 12 … because we have 3 to 4 hours loading time. We have pre-trip inspections. We have all these other activities built in."

Industry comments

The National Tank Truck Carriers (NTTC) supported the 24-hour clock as the basis for work/rest cycles. However, it refuted any assumptions that the tank truck industry has operational predictability and asserted that the rigidity of the rules unnecessarily restricted driver flexibility.

Private Carriers of Freight

The NPTC recommended adopting a 24-hour work/rest cycle. The NPTC believes drivers' HOS regulations should be based on a 24-hour clock, reflecting a significant body of science that has determined that human beings have a natural circadian rhythm.

The International Bakers Association (IBA) favored efforts to promote a 24-hour work/rest cycle without requiring work to start at the same time every day.

Truckload Carriers

Large truckload carriers, such as Schneider National, J.B. Hunt, and Landstar, several of which participated in the formulation of industry's counter-proposal, generally favored a 24-hour work/rest cycle. The smaller truckload carriers were a little more reserved in their support for the 24-hour work/rest cycle, and that was primarily due to concern about the lack of flexibility in the proposal.

The NASTC explained that its members have to depend upon the spot market to obtain back-hauls to maximize earnings. The unpredictable nature of such commerce may make it difficult to adhere to a strict 24-hour workday. Several of its members opposed the rigidity of a "fixed period of 24 consecutive hours."

LTL Carriers

The reaction of the LTL carriers was also generally positive on the issue of the 24-hour work/rest cycle. This may be because the nature of LTL operations is more closely in line with a 24-hour day. Most LTL carriers reported that runs are generally scheduled so they can be completed within 12 hours with no more than 10 hours driving. They need the flexibility of the extra two hours, however, to deal with exigencies. Yellow Freight System (Yellow), one of the largest LTL carriers and a member of Motor Freight Carriers Association (MFCA), recommended that the agency withdraw its proposal and reissue its provisions piecemeal starting with the most beneficial—the 24-hour cycle.

Overnite Transportation Company (Overnite), one of the nation's largest LTL carriers, strongly objected to the inference it drew from the proposal that the 24-hour cycle had to remain constant throughout the workweek. It stated the nature of LTL operations would never conform to a uniform 24-hour schedule. If a driver takes a 6-hour run at 8:00 a.m. after 10 consecutive hours off, he should not have to remain off duty 18 hours until 8:00 a.m. the next day. He should be able to go on duty after 10 consecutive hours off, and let the daily and weekly duty-time maximums control.

AAA Cooper Transportation found the 24-hour work/rest cycle as a positive step to improve drivers' sleep possibilities.

Driver Associations

The OOIDA submitted an alternative proposal that gave due deference to a 24-hour work/rest cycle. The OOIDA, however, specifically rejected any notion that its proposal would require adherence to a fixed starting time each day.

The IBT and most owner-operators and other small to medium-sized truckload carriers comments did not comment specifically on the 24-hour work/rest cycle.

Special Operations

The American Road and Transportation Builders Association (ARTBA) would use 24 hours as a base. The ARTBA's alternative proposal for a "construction industry driver" and the associated daily driving and on-duty time limits within a 24-hour period drew support from the AGC and the National Ready-Mixed Concrete Association (NRMCA).

Shippers

The National Industrial Transportation League supported a 24-hour work/rest cycle but did not provide any detail or statistics.

Safety Advocacy Groups

On the issue of the 24-hour work/rest cycle, safety advocacy groups joined with others from the public sector and scientific community to express strong support of the agency's position.

The AHAS, CRASH, and PATT commended the agency for proposing a 24-hour work/rest cycle, which they believe is supported by an enormous body of research over many years.

The NSC commended the DOT for addressing this contentious issue which has not been fundamentally analyzed in over 60 years, and stated that the agency had done the fundamental research necessary to take it on. The NSC believed the research was strong enough to make the conclusion about reverting to a 24-hour cycle, and strongly supported that part of proposal.

The National Institute for Occupational Safety and Health (NIOSH) of the Department of Health and Human Services agreed that most provisions of the proposed rules would produce positive safety outcomes. It recommended limiting driving within a 24-hour work/rest cycle.

FMCSA Response:

There is general agreement on the concept of a 24-hour work/rest cycle and the scientific support for it. The FMCSA agrees with the general concept of ATA's statement that increasing the amount of off-duty time (from 8 to 10 hours) and having a 14-hour on-duty period promotes driver scheduling which would move the regulations closer to the body's 24-hour clock. The FMCSA believes that the strict 24-hour work/rest cycle would be ideal from a scientific viewpoint, but it is simply not practical and too inflexible to require of the industry. A strict 24-hour work/rest cycle would cause unavoidable impacts to motor carrier operations that the agency cannot justify from a safety or economic standpoint.

A requirement that all on-duty time including driving must occur within the 24-hour period creates the flexibility problems that carriers identified in their comments. Each of the options analyzed in the NPRM prevents the operational flexibility the industry desired. Most of the recommendations made by industry commenters to the NPRM, did not include a strict 24-hour period; operational flexibility was given higher priority.

Moving towards a 24-hour work/rest cycle without requiring a rigid starting time could achieve safety benefits while causing less productivity disruptions to motor carrier operations than adopting the strict 24-hour work/rest cycle the NPRM and PATT proposed.

The PATT and ATA alternatives incorporated a 24-hour work-rest cycle. The FMCSA staff also developed an alternative that incorporated a 24-hour work-rest cycle to provide a more operationally feasible alternative for analysis.

The FMCSA has decided to move towards a 24-hour work/rest cycle containing an extended consecutive-hour off-duty period within which drivers can obtain necessary daily sleep. Logically, off-duty time must always be referred to in terms of the minimum, while on-duty time will continue to be referred to in terms of the maximum.

The FMCSA is selecting its staff alternative incorporating a 24-hour work-rest cycle and a 21-hour drive-rest cycle for the final rule because it provides the most favorable combination of reduced fatigue-related incidents, increased driver alertness, and other safety benefits along with minimal costs to society.

Daily Off-Duty Time

Industry comments

The proposal provided three different consecutive off-duty periods to obtain the same 7 to 8 hours of sleep: 10 consecutive hours off-duty for Types 1 and 2; 9 consecutive hours off-duty for Types 3 and 5; and 12 consecutive hours off-duty for Type 4.

As discussed above, the ATA had earlier submitted recommendations to the DOT in December 1999 while the draft NPRM was being reviewed at OMB before publication. The ATA championed the concept of a 10-hour off-duty period and 14-hour on-duty period of the 24-hour cycle.

The Pennsylvania Motor Truck Association (PMTA), in supporting ATA's alternative proposal for 10 hours off, commented that there was enough time in the day for drivers to rest if necessary while maintaining a productive schedule. It also observed that the FMCSA's proposed rules do not enable drivers to take advantage of downtime at loading docks.

The California Trucking Association (CTA) believes a 10-hour off-duty period is potentially effective.

Tom Carrigan, the director of corporate safety for the Martz Group, testified that in the early days of his career as a Greyhound driver, he could recall reporting to work fully rested and well within legal limits, yet so fatigued that he wondered how he would manage to get out of the terminal, let alone complete his trip. He stated Greyhound provided its drivers with 10 hours of off-duty time between trips and faithfully abided by all of the HOS limitations, yet Mr. Carrigan claimed Greyhound had no control over its drivers' activities while away from work. There were many other occasions when Mr. Carrigan was provided 24 hours or more of off-duty time yet reported for his next trip in a fatigued state due to faulty time management on his part.

Private Carriers of Freight

The NPTC recommended an alternative extending the required daily off-duty period to nine hours. The NPTC believes there is general and indisputable agreement that truck drivers need more opportunity for rest. The IBA supported 10 consecutive hours daily for rest.

Truckload carriers

Schneider National recommended a 10 consecutive hour off duty period "to implement regulations that make sense for the industry, drivers, and the public."

J.B. Hunt also supported changing to 10 hours off duty instead of the current 8-hour resting period. It stated drivers would get ample opportunity for restorative sleep every day and sleep deprivation should not be an issue.

LTL Carriers

The reaction of the LTL carriers was also generally positive on the issue of off duty time. Overnite submitted a recommendation of a minimum off-duty time of 10 consecutive hours, which could be split for drivers using sleeper-berth equipment.

AAA Cooper Transportation believes the daily 10-consecutive hour period off-duty as a positive step to improve drivers' sleep possibilities.

Con-Way commented that the off-duty period should be 10 hours off duty within which to get 7 to 8 hours of sleep.

Driver Associations

The OOIDA proposed a daily off-duty period of 10 hours instead of the current eight hours. It stated: "Ten hours off duty will allow drivers more than sufficient time to get restorative sleep each day and will help drivers resist pressure from shippers, brokers, and motor carriers to drive longer hours."

Safety Advocacy Groups

PATT and NIOSH were very supportive of the proposal's 12 hours of rest.

The IIHS supported the agency's approach of taking the needed amount of daily sleep (7 hours) and the time within which such sleep can be obtained (10 hours). Together with the 60 hours in 7 days limit, the driver gets an average of 12 hours off and accumulation of fatigue would be avoided.

FMCSA Response:

Each driver should have an opportunity for eight consecutive hours of uninterrupted sleep every day. The current rules require a minimum of eight consecutive hours off. Many motor carriers do not provide drivers more than the minimum 8 hours off duty, although the present regulations certainly allow them to do so, and many drivers accept tight schedules without objection. These drivers may have to commute home, eat one or two meals, care for family members, bathe, get physical exercise, and conduct other personal activities, all within their 8-hour off-duty period.

To afford the driver an opportunity to obtain a minimum period of 7 to 8 hours to sleep, the research shows that the off-duty periods need to be increased. Nine hours off duty was originally required in 1937. For various reasons, organized labor objected to most of the original regulations, and upon further deliberation, the ICC reduced the 9-hour off-duty period to 8 hours. 6 M.C.C. 557, July 12, 1938.

The NPRM found that several studies strongly suggest the FMCSA should require an even longer consecutive off-duty period than the 9 hours the ICC required in its original 1937 HOS regulations. To provide additional off-duty periods each day for necessary personal activities and rest, docket comments and research strongly suggest the need for total off-duty periods from 10 to 16 hours. Studies in aviation (Gander, et al. (1991)), rail (Thomas, et al. (1997), Moore-Ede et al. (1996)), and maritime environments (U.S. Coast Guard Report No. CG-D-06-97, U.S. Coast Guard (1997)(MCS 68/INF.11)) illustrate the same point. Studies of truck drivers, including Lin et al. (1993) and McCartt, et al. (1995), point specifically to increased crash risk and recollections of increased drowsiness or sleepiness after fewer than nine hours off-duty.

Studies performed in laboratory settings, as well as studies assessing operational situations, explore the relationships between the sleep obtained and subsequent performance (Dinges, D.F. & Kribbs, N.B. (1991); Bonnet, M.H. & Arand, D.L. (1995); Belenky, G. et al. (1994); Dinges, D.F. et al. (1997); Pilcher, J.J., & Hufcutt, A.I. (1996); Belenky, G. et al. (1987). The results of the studies can be summarized simply: a person who is sleepy is more prone to perform poorly on tasks requiring vigilance and decisionmaking than a person who is alert.

It is virtually impossible for a driver to get an adequate amount of sleep when the driver must subtract time for commuting, meals, personal errands, and family/social life from an 8-hour off duty period, as the ICC found in 1937. Wylie et al. (1996), for example, showed that drivers in the study obtained nearly 2 hours less sleep per principal sleep period than their stated "ideal" (5.2 hours versus 7.2 hours). However, many of them did not manage their off-duty time efficiently or effectively to obtain sufficient sleep. All commuting, meals, personal hygiene, social interaction within the study setting, the study protocol itself, and sleep had to fit into their off-duty periods. The U.S. and Canadian drivers participating in that study operated under schedules set up to allow driving up to the maximum time periods permitted under U.S. or Canadian regulations. The drivers returned to regular work-reporting locations at the end of a shift. The elapsed time between beginning and ending a shift included many ancillary duties and other activities in addition to driving so that time available for sleep was generally limited to 8 hours. Participants who drove a regular 10-hour daytime schedule every day spent 5.8 hours in bed and 5.4 hours asleep. Study drivers who ran a regular 13-hour schedule starting in the daytime spent 5.5 hours in bed and 5.1 hours asleep. This was about 2 hours less than the drivers would have preferred to sleep. The time-in-bed similarities between the 13-hour and 10-hour daytime drivers was likely due primarily to their proximity to the sleep center–the 13-hour drivers had to commute less than 10 minutes from their home terminal to the sleep laboratory and 10-hour drivers had to commute between 20 to 30 minutes. (All times cited are for the principal sleep periods, and do not include the naps that some drivers took during their work shifts.) Also, the drivers in both of these daytime-driving groups were able to obtain their principal sleep during optimal times of the day, starting in late evening and ending in the early morning.

Other studies have found that the amount of sleep obtained by CMV drivers is variable and often short. Arnold, P. et al. (1996), interviewed over 700 CMV drivers in the state of Western Australia, which has no formal HOS regulations. Of the drivers interviewed, about 5 percent reported having no sleep on one day during the prior week, 12.5 percent reported obtaining less than 4 hours of sleep one or more work days in the prior week, and about 30 percent reported obtaining less than 6 hours of sleep on at least one work day. Prior to commencing their current trips, about two-thirds of drivers had between 6 and 10 hours of sleep, but about 20 percent had less than 6 hours of sleep (pp. 27-28). VanOuwerkerk, F. (1988) in a study based on interviews with 650 international European Economic Community (EEC) drivers, noted that drivers reported a median sleep time of 6.7 hours and a median rest period of 7 hours. They reported that the "minimum rest time [reduction from 11 hours to eight hours not more than two times per week, as permitted under the current EEC Council Directive] has become the rule" as far as both drivers and enforcement officials were concerned.

In their survey of 511 medium- and long-distance truck drivers in the United States, Abrams, C., Shultz, T., & Wylie, C.D. (1997), found no statistically significant differences in the stated rest needs among the categories of drivers (owner-operator, company driver, regular route, irregular route, solo, team): on an average day, a driver reported needing an average of 7 hours of sleep. There was a slight difference between union and non-union drivers; the former reported needing about 31 minutes less sleep. Just over 90 percent of the drivers reported that they usually used a sleeper berth while on the road. Almost three-fourths of the drivers reported taking their sleep in a single period, spending eight to nine hours in the berth. Just over two-thirds of the drivers who split their sleeper berth period reported usually spending 4 to 5 hours in the berth during one period.

After reviewing the research, comments, and regulatory analysis, the FMCSA selected three alternatives to analyze in detail: the PATT and ATA proposals and its own staff alternative. The PATT alternative would set off-duty time at 12 consecutive hours and the ATA and FMCSA alternatives at 10 consecutive hours.

The FMCSA is convinced that requiring two additional hours of off-duty time to obtain additional sleep and accommodate commuting, meals, personal errands, and family/social life is enough minimum time for the majority of drivers. A driver may need additional time, such as for longer than normal commutes, medical appointments, and family/social life needs, but those additional times can be handled through labor-management arrangements. The agency's 10-hour limit is materially better from a safety standpoint than the current rule. Under the current rule a driver

who resides one hour from the normal work reporting location, could conceivably be required to return to the wheel within 8 hours after being released from duty and at most could get only 6 hours of sleep. This final rule's requirement, however, is not so restrictive as to impose an unreasonable burden on productivity and generates the most favorable combination of reduced fatigue-related incidents, increased driver alertness, and other safety benefits, along with minimal costs to society.

Daily On-Duty Time

Industry comments

The PMTA, in supporting ATA's alternative proposal for 14 hours on duty followed by 10 hours off, commented that there was enough time in the day for drivers to rest if necessary while maintaining a productive schedule. It also observed that the FMCSA's proposed rules do not enable drivers to take advantage of downtime at loading docks, suggesting that the agency adopt a more liberal interpretation of the 14-hour block of on-duty time.

The CTA observed that the 24-hour workday should be split into only two periods, a 14-hour work period and a 10-hour off-duty period.

Private Carriers of Freight

The NPTC recommended a 15-hour on-duty limit. The NPTC commented: "Any limit on maximum daily on-duty time of less than 15 hours would disrupt many private carriers' operating schedules and practices. We do not believe a limit of less than 15 hours can be cost-justified."

The IBA supported 14 hours of productive time with flexibility to extend twice a week by one to two hours under "certain" (undefined) circumstances.

Truckload carriers

Schneider National agreed with the ATA recommendation to change from the current 15-hour rule to a 14-hour on-duty rule within any 24-hour cycle "to implement regulations that make sense for the industry, drivers, and the public."

J.B. Hunt also supported changing the work/rest cycle to 14 hours on duty and 10 hours off instead of current 10-hour driving/15-hour working/8-hour resting cycle, but also favored the proposed 12-hour work limit in 24-hour workday, preferably with no multi-day cumulative limit. Hunt observed that the biggest negative impact comes from the rigidity of the proposal.

Perfetti Trucking, which actively participated in the hearings and roundtable discussions in addition to submitting written comments, stated drivers should get credit for rest time and that rest time should extend the 14-hour duty period.

The NASTC pointed out a problem with the 14-on, 10-off daily cycle in that all productive time would have to be condensed into a 14-hour block of time. If a driver has to take a nap or rest from 1 to 2 hours, he would pay the price in productivity and would therefore more likely disregard his condition and continue to operate.

LTL Carriers

Watkins Motor Lines, Inc. (Watkins) reported it has approximately 2,400 drivers engaged in pickup and delivery operations or short hauls that would best fit in the Type 4 operations provided in the proposal. These drivers work five days a week, begin work about the same time every day and return to their home terminal at the end of the workday. All of these drivers are scheduled for no more than 12 consecutive hours each day. However, because of unforeseen circumstances (breakdowns, weather, traffic, etc.) on any given day, an average of 4 percent, or 95 drivers, are required to extend their scheduled day by an average of less than 60 minutes.

Overnite recommended a maximum on-duty time of 14 hours.

Con-Way recommends 14 hours on duty with no distinction between driving and non-driving time.

Driver Associations

OOIDA stated: "The maximum available time of 14 hours that OOIDA proposes is very reasonable and more than sufficient time to allow drivers to accomplish their work." The OOIDA, however, specifically rejected any notion that its proposal would require adherence to a fixed starting time each day.

Many other comments from owner-operators and small to medium-sized truckload carriers focused on those provisions in the proposal that they found most troublesome, i.e., failure to display an understanding of the flexibility needed in irregular route, truckload business.

Special Operations

The ARTBA would limit duty time to 16 hours and was supported by the AGC and the NRMCA.

Safety Advocacy Groups

AHAS cited numerous studies finding that risk geometrically increases during the 10th and 11th hours on duty. The studies cited in the preamble as showing that performance degrades dramatically after the 12th hour, AHAS noted, actually stand for the proposition that performance starts to degrade after the 8th hour. The AHAS stated that it would be more comfortable if the proposal limited on-duty time to 12 hours, but believes that would not change the industry's tendency to violate the rules.

PATT, NSC, and NIOSH all concurred with the proposal limiting duty time to 12 hours in each 24 hours.

FMCSA Response:

The environment in which motor carriers and their drivers operate is significantly different from the environment in which they operated in 1938. The CMVs and highways they operate on are dramatically improved, making the driving task, while still a demanding one, considerably less arduous than was the case then. The FMCSA believes there can be little doubt that fatigue directly attributable to the exertion required to operate the modern CMV is less of a factor now. Society has learned a lot about the science of sleep since 1938 and understands the more relevant issue is how long the driver can be awake and "at work", and still be allowed to drive, before safety is significantly compromised.

After reviewing the research, comments, and RIA, the FMCSA is convinced that 14 hours after the beginning of a duty tour is long enough for most drivers, given the significantly increasing degradation of performance which occurs in the later stages of a work shift.

The FMCSA found that restricting those drivers who return to the normal work reporting location at the end of every shift has the unintended consequence of requiring a significant increase in new drivers. These new drivers would increase both costs and crashes. The analyses showed that by allowing these short-haul drivers the flexibility to work up to 16 hours one day in a week would reduce the number of additional drivers needed for the staff alternative. This flexibility would result in cost savings of nearly $500 million and safety benefits of nearly $10 million.

The FMCSA believes this 14-hour limit for most drivers, and 16-hour limit for short-haul drivers once a week, is materially better from a safety standpoint than the current rule. A driver under the current rule could conceivably still be allowed to return to the wheel several hours after the 15-hour limit has passed (because "off duty" breaks that can extend the workday). The limit, however, is not so restrictive as to impose an unreasonable burden on productivity.

In conducting its RIA, the FMCSA made sure it included analysis of private carriers' operating schedules in view of the NPTC claims. The RIA, however, has justified the cost to reduce the number of available on-duty hours to 14 hours after the driver begins work. The FMCSA does not believe 16 hours every day, as supported by the ARTBA, AGC, and NRMCA, would reduce fatigue-related incidents and increase driver alertness as these commenters contend.

AHAS correctly cited studies showing that performance begins to degrade after the 8th hour on duty and increases geometrically during the 10th and 11th hours. The agency's RIA, however, demonstrated that the FMCSA staff alternative produces substantial net safety benefits compared to the current rule, despite allowing up to 11 hours of driving, because it also requires 10 hours off duty, instead of 8, and reduces the backward rotation of drivers' sleep/wake schedules. See the discussion above under the **FMCSA Response** to the **Daily Off-Duty Time**.

In reviewing the recommendations made by commenters to the NPRM, the FMCSA found the PATT, ATA, and its staff-developed alternatives the most feasible. The PATT alternative would set on-duty time at 12 consecutive hours. The ATA alternative would allow a driver to be on duty 14 cumulative hours with up to 16 cumulative hours twice per 7-day period. The FMCSA alternative would set on-duty time at 14 consecutive hours once the duty tour begins for long-haul and short-haul drivers, while short-haul drivers would have the opportunity to work up to 16 consecutive hours one day per week.

The FMCSA has chosen to promulgate its staff alternative because it provides the best combination of safety and compliance costs.

Daily Driving Time

Industry comments

The CTA believes the workday should include a 14-hour work period and strongly argued for preservation of intrastate exemptions allowing drivers transporting farm products to drive 12 hours in a 16-hour day.

Private Carriers of Freight

The NPTC recommended adopting a daily driving limit of 12 hours within a 15-hour on-duty limit.

The IBA supported a 14-hour productivity time with flexibility to extend it twice a week by one to two hours under "certain" (undefined) circumstances.

Truckload carriers

Schneider National agreed with the ATA recommendation to change from the current 10-hour driving rule to a 14-hour on-duty rule "to implement regulations that make sense for the industry, drivers, and the public."

J.B. Hunt also supported changing the work/rest cycle to 14 hours on duty and 10 hours off duty instead of the current cycle, but it also favored the proposed 12-hour work limit in 24-hour workday. J.B. Hunt believed this would enable a driver to average 10 hours of work a day, extending to 12 hours of work as circumstance demands. Hunt observed that the biggest negative impact comes from the rigidity of the FMCSA proposal.

LTL Carriers

Overnite recommended a maximum of up to 10 hours driving.

Con-Way recommended 14 hours on duty with no distinction between driving and non-driving time.

Driver Associations

The OOIDA recommended no restrictions on daily driving time, which OOIDA believes should be left to the discretion of the driver.

Special Operations

The ARTBA would limit driving time to 12 hours in a single 24-hour day and 72 hours in seven days, and it drew support from the AGC and NRMCA.

Safety Advocacy Groups

AHAS stated that "[FMCSA] has reversed its own policy stance of record on the dangers of driving more than 10 consecutive hours." AHAS pointed to the FHWA's November 1990, Report to Congress On Commercial Driver Hours of Service, where the agency openly endorsed research findings about the adverse effects of longer continuous driving times and of cumulative fatigue over several consecutive days of driving. AHAS argued that this report acknowledged that "[t]he risk of accidents appears to increase with the number of hours driven." With regard to the current 10-hour driving limit, AHAS argued the agency had asserted in 1990 that "this requirement is consistent with the research finding that the potential for accidents rises as the hours of driving increase and the driver is more likely to become fatigued." AHAS stated that the FHWA report also "favorably cites the [IIHS'] 1987 study by Jones and Stein, [Effects of Driver Hours of Service on Tractor-Trailer Crash Involvement], showing 'that driving in excess of 8 hours may be associated with a significantly increased risk of crash involvement. This reported increase in relative risk confirmed other findings [citing Mackie and Miller, Effects of HOS Regularity of Schedules, and Cargo Loading on Truck and Bus Driver Fatigue, 1978]'." AHAS quoted the FHWA report: "Research indicates that the time spent on-duty may be a more important factor in driver loss of alertness [citing Harris and Mackie, A Study of the Relationships Among Fatigue, HOS, and Safety of Operations of Truck and Bus Drivers, 1972]." AHAS argued that "there has been no research since this Congressional report, including research completed for the OMCS over the past decade, which has refuted the accuracy of these observations or of the research on which they are based."

AHAS also extensively quoted a Federal Register notice from 1980 stating:

> The [rationale] for the hours of service regulations is justified by the concept that the longer a person drives, the more [fatigued] that person becomes and consequently, the more prone to becoming involved in accidents.

45 FR 82284, at 82286.

> Fatigue, however it is defined, appears to be the chief factor limiting a person's output. Various studies have shown that when the working day is lengthened, productivity goes down, when the number of hours worked is reduced, performance increases.

> The influence of fatigue in accident causation has been demonstrated and where there has been a reduction in hours worked, there has been a reduction in accidents. There is some evidence that 8 hours of work a day, where the work is fairly demanding, is the maximum that should be permitted for highest productivity and lowest accident rate.

45 FR 82284, at 82288.

AHAS also argued that FMCSA's predecessor agency in 1987 endorsed findings that increased consecutive driving hours and consecutive days of driving both directly contribute to driver errors and crashes. See 52 FR 45215. AHAS argued that FHWA made assertions to the same effect in the November 29-30, 1988, Symposium on Truck and Bus Driver Fatigue.

AHAS also argued that "[n]one of the research findings showing the increased safety and productivity of fewer hours worked and driven than the maximum 10 hours permitted under the current regulation are cited or discussed anywhere in the instant proposed rule."

AHAS continued that "no credible studies in the intervening years have countermanded the accuracy and wisdom of these observations. Indeed, scores of new studies have amply and repeatedly corroborated the FHWA's policy statements over the past 20 years about the dangers of driving and working longer hours."

Finally, AHAS argued that "the FMCSA has categorically altered its position in this rulemaking on the merits of driving and working longer hours without demonstrating why and how these prior conclusions are no longer valid. AHAS does not believe the agency has countered these documented policy views with any new facts and information which moot their application to the revision of the current HOS standards to ensure that drivers work and drive fewer hours to ensure a reduction in both the relative and absolute risks of truck crashes. Instead, the agency, against all the evidence of record, including their own policy statements over the years, has offered amendments to the current regulation which demonstrably will promote truck and bus drivers to drive longer consecutive hours at a greatly increased risk of crashes due to an increased prevalence of fatigue among commercial operators."

AHAS believes that nighttime driving is less safe than daytime driving because of the circadian effects on the driver. It rejects, however, as speculative and unsupported by any evidence, the potential that displacement of nighttime operations to daytime could create additional safety problems due to increased congestion.

CRASH's principal objection is that the proposal increases by two hours the amount of time a driver can drive in one day. CRASH cited studies showing that crash risk nearly doubles after 8 hours and doubles again after the 9th hour.

PATT joined AHAS and CRASH in strongly opposing any increase in the 10-hour driving limitation because of research that shows the risk of crashes increases after 8 hours and even more significantly after 9 to 10 hours. PATT recommended limiting driving to 10 hours out of 12 hours of allowable duty time each 24 hours, or to put it another way, no more than 50 hours driving in 60 duty hours per week. On these issues, the safety advocates were in harmony with the position of the IBT.

The IIHS commented that there are "gold standard" studies relating crashes of truck drivers to driving hours showing that performance degrades starting after the 5th hour, but the risk dramatically increases after the 10th hour.

NIOSH recommended limiting driving to 10 hours within a 24-hour work/rest cycle of 12 hours on duty and 12 hours off duty. NIOSH also said the FMCSA should consider allowing up to 12 hours of driving per day on rare occasions as required by emergencies or other unusual circumstances where continued driving would be safer than stopping.

FMCSA Response:

Just as industry was inclined to interpret the science as allowing greater productivity without facing greater risk, the safety advocates cite the science as requiring the agency to go further to restrict driving time.

Although AHAS argued that there have been no credible studies since 1981 and 1990 countermanding the agency's previous position, FMCSA believes recent studies have provided new information requiring the agency to reevaluate its former policy statements.

America's transportation system has changed significantly since the late 1930's. Long-haul truckers in the 1930's could average only 25 miles per hour (mph) – the top speed was 40 mph – and the best daily run was about 250 miles (11 M.C.C. 203). These truckers used drafty, noisy, and underpowered trucks to labor up long hills and other rough, narrow, and poorly-marked winding roads. The construction of the Interstate Highway System has contributed to significantly higher traffic speeds and volumes. Trucking, once a relatively minor adjunct to the railroads, has become the dominant form of transportation for most commodities. Much of the nation's truck traffic moves on the Interstates and other high-speed roads, sometimes for very long distances using modern, heated/air-conditioned, air-suspension, sleeper-berth, cruise-control equipped tractors for drivers' comfort and safety.

The high volume and speed of traffic on the Interstates and many other roads require a higher level of driver alertness, for the sheer mass of a truck can make it deadly when accidents occur. Of course, trucks also operate in local or regional environments, often in heavy traffic, and drivers are required to perform an ever-wider range of duties. The results of scientific research into fatigue causation, sleep, circadian rhythms, night work, and other matters were unavailable decades ago when the HOS rules were formulated. The FMCSA believes there can be little doubt that fatigue directly attributable to the exertion required to operate the modern CMV is less of a factor now.

By limiting daily duty hours, the NPRM would have imposed a more regular work/rest cycle, assuming that very few, if any, drivers would drive their entire on-duty period. This is consistent with testimony from carriers and drivers alike about customary practices. The AHAS pointed out, however, that the degraded performance in the eleventh and twelfth hours on duty should not, at least regularly, be spent behind the wheel. The AHAS position does create potential issues with operational practicality. The AHAS insisted science would require the agency to include both a reduction in a driver's nighttime operations and an increase in time off to compensate for driving at night when the sleep debt accumulates because daytime sleep is inferior to nighttime sleep. It dismissed as purely speculative any impact on safety from displacing many drivers from nighttime to daytime operations and the great number of inexperienced drivers necessary to replace the drivers whose availability would be substantially limited.

The FMCSA initially considered the proposals submitted in the ATA comments and in the petition of the DLTLCA the same; however, when the agency began considering whether the ATA recommendation could be potentially effective and reasonably feasible, we found significant differences with the DLTLCA proposal that raised serious

questions about the effectiveness and reasonableness of both. The ATA asserted that its proposal was based upon research showing that humans function on approximately a 24-hour cycle, and therefore that new rules should promote rest/work cycles synchronous with the body's natural 24-hour biological rhythms.

The so-called circadian cycle or rhythm has two general tendencies on the wake/sleep cycle of humans. During daylight hours, the human body tends to be wakeful, and during nighttime, the human body tends toward sleepiness. Therefore, people would not only tend toward drowsiness during the late night and early morning hours, they would also tend to have more difficulty obtaining restorative sleep during the daylight hours. The latter situation may lead to the accumulation of sleep debt, resulting in increased tendency toward drowsiness not only in subsequent nighttime periods of required wakefulness but at other times as well.

This is not to say there are no safety benefits to be derived from promoting regular work/rest cycles, and industry is to be commended for proposing one. It should be noted, however, that nothing in the current rules would preclude more regular schedules.

The FMCSA believes that allowing one additional hour of driving activity can be safely accommodated within the context of a somewhat reduced overall tour of duty as discussed above. The FMCSA staff alternative selected for evaluation includes no driving after 14 hours from the start of duty tour notwithstanding intermittent breaks off duty for meals, naps, and other rest. In arriving at 14 hours, the agency believes drivers would realistically take some breaks during that time and the work period may well accumulate 12 or 13 hours, with up to 11 hours driving.

The FMCSA relied upon 12 studies to select a 10 consecutive hour off-duty period, a 14-hour tour of duty, and a maximum of 11 hours of driving. The 12 studies are included within the agency's review of all research studies used in the NPRM. The agency's review is by Freund, D.M., November 1999, "An Annotated Literature Review Relating to Proposed Revisions to the Hours-of-Service Regulation for Commercial Motor Vehicle Drivers," that is in the docket. The FMCSA staff alternative concluded that, after 14 hours from the start of the work period, it is time to stop driving, as the risk of fatigue-affected incidents is increasing rapidly.

The PATT alternative would set driving time to no more than 10 cumulative hours. The ATA alternative would allow drivers to drive up to 14 cumulative hours with up to 16 cumulative hours twice per 7-day period. The FMCSA staff alternative would allow driving time up to 11 cumulative hours for long-haul and short-haul drivers. The FMCSA has decided to allow drivers to drive up to 11 cumulative hours for all long-haul and short-haul freight drivers.

Although the agency focused on science in developing the NPRM, it cannot allow science alone to dictate the form or content of a rule, as many safety groups advocate. On the other hand, while reviewing economic, operational, and environmental issues with great care for this final rule, FMCSA has not allowed itself to be bound by those considerations either.

Distinctions in Duty Time

General concept

The expert panel assembled by the agency to review the options under consideration before publication of the NPRM recommended eliminating the distinction between on-duty time and driving time. The scientific basis for the recommendation is the belief that driving is no more tiring than many of the other tasks a truck driver would be called upon to perform.

The agency's practical basis for the proposed elimination was to reduce the paperwork burden. Under the existing rules, drivers are required to account for both driving time and non-driving duty time. Eliminating the distinction, moreover, would achieve consistency with the terminology used by the Wage and Hour Division of the U.S. Department of Labor (DOL), allowing FMCSA to rely on DOL records in place of driver records of duty status.

ATA recommendation

When developing its recommendations, the ATA stated it was aware of the expert panel's findings that driving is no more fatiguing than other work. Therefore, it proposed to eliminate the distinction between driving time and other on-duty time as unnecessary, leaving the possibility of 14 consecutive hours of driving. The ATA opined that hours of driving time would always be less than the overall duty time within which the driving takes place. The ATA cited its HOS survey in which commenters reported driving an average of 9.1 driving hours in an 11.4-hour day.

The DLTLCA commented that they "went along with ATA" although they wanted a 12-hour limit on driving. They stated that the 12-hour driving limitation was consistent with DOT's proposal and its research, and noted that five states already allow 12 hours of driving (for intrastate trips). The industry petitioners "recognized that the business, operational and safety needs of trucking companies and their customers will continue to consume several hours of a driver's time each day," so that "a limit of driving time to 12 hours would result."

The NPTC alternative was much more direct. With little explanation, the private carriers recommended a maximum of 12 hours driving in a 15-hour on-duty period.

Other industry comments

The MFCA made no comment specifically on this issue, because its constant position is that the present rules should remain in force. The fact that the IBT strongly opposed eliminating the distinction seems to support the validity of this assumption.

The NTTC supported the elimination of any distinction between duty-time and driving-time.

Throughout the public hearings on the NPRM, notwithstanding vocal support for the ATA recommendation, nearly all carriers and most drivers testified that daily driving rarely exceeded 10 hours, and then it was only due to some exigent circumstance. For example, Con-Way surveyed its line-haul drivers, who were described as combination drivers and dock-workers. Most runs are at night and the driver's average duty time was 10.88 hours. Their average driving time, however, was only 6.22 hours and their average load time was 4.5 hours. Con-Way also did a study of all its line-haul operations on one day, which was the last workday of the month and admittedly a worst-case scenario. 3900 drivers were dispatched and 42 percent exceeded 12 hours on duty, but none exceeded ten hours of driving.

The IBT maintained a consistent position throughout the proceedings, dating back to its initial response to the ANPRM in June of 1997. One of the four elements of a rule that IBT could support was maintaining the distinction between driving and non-driving duty. The IBT observed that the agency's proposal failed three of its tests, including this one. It argued that eliminating the distinction is what permits driving time to be extended, and agreed with the safety

advocates that some drivers would push the envelope and drive 14 hours a day. The IBT noted that the union is successful in getting driving limitations into contracts because of the DOT rules.

The Snack Food Association, the National Soft Drink Association, and the PMAA all reported that drivers in these segments of the industry are also salespeople and customer service representatives. They spend considerable portions of their daily duty time in non-driving activities, and actual driving time would not exceed 10 hours.

The construction industry's recommendation to create another category – "construction industry driver" within a 100 mile radius of operation – would continue a distinction between driving time and on-duty time. Because of the seasonal and weather-dependent nature of the industry, the proposal, supported by AGC and ARTBA, would:

(1) Extend limits to 12 hours of driving and 16 hours of duty during a 24-hour period;

(2) Extend weekly limits to 72 hours driving and 80 hours on duty;

(3) Average driving and duty time over 14 days;

(4) Allow 90 hours of driving during the first 8 days, a 34-hour restart, and a 45-hour driving limit over the remaining 4½ days, followed by a 24-hour restart; and

(5) Provide for a 24-hour restart of time accumulation at any time, presumably even to avoid the 34-restart.

The need for such increased driving time is not apparent from testimony and comments regarding industry practices. An alternative suggested by the AGC sheds some light. In construction, most drivers have no responsibility for loading and unloading. Mostly, they wait in line for loads and then wait in lines at sites to unload. Therefore, AGC would retain the distinction between driving and non-driving duties, but change what is meant by on-duty time to exclude time waiting in lines to load and unload.

The American Moving and Storage Association (AMSA), which also claims that its operations are unique, reported that drivers do not really spend the majority of their on duty hours behind the wheel, averaging about 75,000 miles a year. AMSA claims most of the driver's on duty hours are spent loading and unloading.

The Institute of Makers of Explosives (IME) complained that the 12-hour on-duty restriction for Type 4 drivers will severely impact on "shot service," which entails loading "shot" holes with explosives, setting the charge, and initiating the shot. The operators for IME members apparently need at least a 14-hour day to provide the flexibility needed for that activity, but not to accommodate more driving.

Small truckload carriers, represented by NASTC, opposed both reducing daily on-duty time and removing the distinction between driving and non-driving time. They stated that, under the present rules, a driver can drive up to 15 hours in any given 24-hour period, giving a range of 750 miles. Under the proposed rule, the range would be reduced to 600 miles.

The OOIDA's survey, on the other hand, found its members spend an average of 10 hours per day driving and 2.4 hours per day loading and unloading. An average of 10 hours of driving per day, of course, would mean that on some days the 10 hours would be exceeded.

Private carriers, according to NPTC, advocated a limit of 12 driving hours within a maximum of 15 duty hours daily. The need for this increase in driving time was unexplained except that the NPTC stated it was consistent with safe operating practices. Wal-Mart, moreover, stated the 12-hour on-duty limitation within 14 consecutive hours is more restrictive than the 10-hour driving limitation and 15 hours on duty. Under the proposal, drivers would have to drive more within a smaller window to maximize earnings.

Safety Advocacy Groups

Safety advocates contended that failure to distinguish on-duty time from driving time would increase violations of HOS regulations.

The AHAS asserted that pay-per-mile practices would cause drivers to continue to maximize driving time at the expense of the required ten consecutive hours off duty and two hours of rest periods. It argued that because drivers can presently use non-driving duty time each day to perform non-driving tasks, this "has helped" to limit even more flagrant abuses that would occur if there were no non-driving hours available in the regulations. The principal concern of the safety advocates was the belief that allowing 12 hours of unspecified "duty time" would necessarily translate into 12 consecutive hours of driving. They cited numerous studies finding that risk dramatically increased during 10th and 11th hours, and predicted that pressures from efficiency-minded schedulers would assure that the industry would fully exploit this additional driving time.

CRASH stated that eliminating the distinction between driving time and other on-duty time would result in motor carriers squeezing drivers for every possible minute of driving time, and carriers would pressure drivers to work during rest periods.

The IIHS commented that the safety community would prefer a driving limit of eight to nine hours in a 24-hour period. They are realistic enough to know that they should be content with keeping close to the status quo.

The NIOSH, agreeing that most provisions in the proposal would produce a beneficial safety outcome, recommended limiting driving to ten hours within a 24-hour work/rest cycle of 12 hours of duty and 12 hours free. It also stated, however, that the agency should consider allowing up to 12 hours of driving per day on rare occasions as required by emergencies or other unusual circumstances where continued driving would be safer than stopping.

FMCSA Response:

The FMCSA and PATT alternatives distinguished between duty and driving time, the ATA's did not. The FMCSA has decided to retain the distinction between driving and on-duty-not-driving time. Each driver required to prepare records of duty status must continue to record all driving time separately from all time on-duty.

The paperwork reductions sought by the agency in eliminating the distinctions in drivers' work hours received little support. That objective even drew some criticism because the proposed substitute for the paper log, the EOBR, is incapable of directly monitoring non-driving duty time. The ATA opposed the use of DOL records, as did the MFCA, which contends that few motor carriers are even aware of their responsibility under the DOL regulations.

The ATA recommendation would eliminate the distinction between driving and other on-duty time, ostensibly securing a more favorable work/rest cycle for drivers. The ATA and other sponsors of the industry alternative stated that their support for a 14-on duty, 10-off duty work/rest cycle is a "substantial positive change" for which they should receive some compensation to offset productivity losses. That compensation would be in the form of more daily driving hours, potentially making 14 consecutive hours of driving legal. In the context of "pay-by-the-mile" incentives, that possibility looms large, although the industry sponsors were confident that the exigencies of the working day would impose a natural 12-hour driving limit.

Support for this alternative from the rest of the for-hire industry was fractional. Aside from the small truckload carriers, there was a fairly broad consensus in favor of retaining the current limits on driving time, subject to greater flexibility in usage. Imposing a 10-hour driving limit in a 24-hour period would have a substantial impact on small truckload carriers. They are presently permitted to drive up to 16 hours in a 24-hour period under a 10-hours-on duty/ 8-hours-off duty rotation. If limiting actual driving to eleven hours is a legitimate safety measure, it would not seem equitable to allow exceptions simply because drivers could make more money under more liberal rules. On the other hand, if most drivers operate safely under current rules, it would seem inequitable to subject them to more stringent regulations that would cut into their earning capacity or disrupt their life.

The FMCSA has decided to continue the distinction between driving time and on-duty time. The comments, particularly from safety groups, adamantly opposed allowing as much as 12 hours of driving time. Because the FMCSA believes that a reasonable person could find that the last hour of a driver's duty tour would be expected to be driving time that comes near the end of a 13- or 14-hour workday, the FMCSA is persuaded that 11 hours is a more reasonable limit. Within the limits of a tour of duty usually lasting no more than 14 hours, the FMCSA believes there is little doubt that modern CMVs can be driven safely up to 11 hours, particularly because rest breaks can be expected to naturally occur during the course of that tour.

Weekly or longer cycle

General concept

The scientific basis for proposing weekly restrictions is the finding from research studies that sleep debt from multiple periods of insufficient (poor quality or insufficient quantity) sleep is the major cause of cumulative fatigue. The recommended countermeasure is a recovery period during which restorative sleep may be obtained and the "sleep debt" repaid. The concept of a weekly recovery period was presented in the NPRM in the definition of workweek, i.e., "any fixed and regularly recurring period of seven consecutive workdays," and in the number of hours required to be off-duty before beginning the next workweek.

The comments raised concerns over the agency's proposal for a "workweek," starting with the definition, which many thought confusing. In some segments of the industry the concept of a Monday to Friday workweek is alien. The language of the definition ("fixed…workweek") did appear to give these carriers cause for alarm, which the agency acknowledged during the hearings and roundtable discussions. A more logical definition of "workweek" might have been "the workdays between extended off-duty periods," although how the term might be used in regulatory context is not clear. The recovery period or "weekend" requirement will be discussed elsewhere in this document.

ATA recommendation

The ATA recommendation would limit drivers to 70 hours on duty in a 7-day period (with no distinction between driving and other on-duty time). It would provide a minimum recovery period of 34 hours, which would serve as a restart provision. The ATA recommendation also provides an averaging option of 140 hours on duty in 14 days. Under this option, according to the petitioners, a driver could accumulate 84 hours on duty in the first seven days before a 34-hour recovery period would be required. A driver taking advantage of this option would then be limited to 56 hours on duty over the remaining 5½ days.

Other industry comments

The alternative proposal of the NPTC would simply maintain the present 60-hours-in-seven-days or 70-hours-in-eight-days limitations.

OOIDA's proposal would place no limits on cumulative time beyond the daily restrictions.

Large truckload carriers generally supported the industry alternative of limiting on-duty time to 70 hours in 7 days with provision for a 34-hour restart. They also supported the 14-day averaging option.

J.B. Hunt supported the proposed 12-hour work limit in a 24-hour workday, but with no cap on the length of the workweek, reasoning that drivers would get ample opportunity for restorative sleep every day and sleep deprivation should not be an issue. If a cap were necessary, Hunt would implement a limit of 140 on-duty hours in 14 days with a 36-hour restart period. The 36-hour off-duty break would have to be taken during or at the conclusion of 14-day period, which then would start another 14-day period. This means a driver could average 10 hours of work a day, but could extend to 12 hours of work, as circumstances required.

Landstar commented that it fully supports using 24-hour and 7-day work/rest cycles, but found provisions in the proposal that do not make sense from either a safety or practical aspect. It recommended a limitation of 70 hours driving in a 7-day period, followed by 24 hours off duty, which would actually be an 8-day week.

The State trucking associations collaborated in the ATA alternative and therefore must be considered to have supported it.

PMTA noted that the loss of the 70 hours in 8 days provision under the existing rules will cause major schedule disruptions and reduce productivity by 15 percent.

CTA commented that a maximum 60-hour workweek is too restrictive. It will aggravate the driver shortage, place more inexperienced drivers in more trucks on the road, reduce drivers' incomes, and severely harm the economy.

The unionized LTL carriers demurred on this issue, apparently reflecting the position of the MFCA that they were content with the present rules and saw no reason for change.

Many LTL carriers joined in support of the ATA recommendation co-sponsored by the DLTLCA.

Con-Way promoted the industry alternative with the averaging option of 140 hours over 14 days and a 34-hour restart.

Overnite, however, took a more conventional position: on-duty time should be limited to 62 hours in a 7-day period. That would simply be a conversion of the present restriction of 70 hours in 8 days, or productivity neutral.

The small truckload carriers represented by NASTC adhered to a philosophy that drivers should have the opportunity to drive during the "week" and be home on weekends with their families. Therefore, they recommended the present limit of 70-hours in 8 days be retained. They further recommended an exception, which would allow drivers returning home to continue at a 10-hours-on and 8-hours-off pace until he reaches his destination. So long as the drivers maintained that pace on their return journey, there could be no violation of the 70-hours-in-8-day rule. However, if the drivers exceeded the 70-hour limit on the home trip, they would be required to take a minimum of 56 hours off.

OOIDA took the position that requiring 10 hours off and limiting available duty time to 14 hours daily is sufficient regulation to assure opportunity to rest for drivers throughout the industry. Any further limitations should be entirely at the driver's discretion.

The NPTC pointed out a concern in the proposal's fixed workweek. Its reading of the proposal is that it would force drivers into a "fixed seven-day workweek" with the two consecutive days off at the end, regardless of how many hours they worked during the week. Therefore, "a driver could apparently work 24 hours over three days, take two days off and then be required to take another two days off at the end of the 'workweek.' Since the driver clearly would have adequate rest by any standard, there is no possible safety rationale for this requirement." The NPTC recommends retaining the current cumulative 7- and 8-day on-duty limits.

Wal-Mart, on the other hand, preferred the ATA recommendation's workweek of 70 hours in 7 days. This would allow Wal-Mart to maintain the flexibility of its 7 days on, 7 days off schedule and actually enhance safety.

The PMAA sought clarification of the proposal's "workweek," and offered an example. Driver A starts work at 8:00 a.m. Sunday and quits at 8:00 p.m. He continues this for 5 days, ending at 8:00 p.m. Thursday. After the mandatory 56-hour weekend, he could start a new week at 8:00 a.m. Saturday, but would he be violating a "seven consecutive days" provision.

The moving industry and the construction industry, each contending for a sixth category that would better address their unique needs, had problems with the proposed workweek. The moving industry comments indicated it needs more flexibility because movers could not operate on a fixed 7-day schedule.

The logging industry also pleaded a hardship because it can only transport tree-length loads in daylight hours under State size and weight laws, which severely restricts operations in the winter months. Their problem dealt more with the fixed nature of a "workweek" as defined in the proposal, and presented an example of losing the first two days of a workweek to rain and the inability to restart a new workweek as defined.

The oil and gas drillers stated that their industry is a 7-day/24-hour operation, so workweeks have little meaning. In some cases drivers are scheduled on rotations of 9 days on and 3 days off to provide full coverage.

Safety Advocacy Groups

Advocates stated that the proposed workweeks were too long, focusing on the possibility that an entire 60-hour workweek could be spent behind the wheel. It also stated that a 60-hour workweek would cause a build up of sleep debt because longer daily shifts adversely affect the ability to obtain restorative sleep. The AHAS objected to the NPRM's allowance of alternating long and short workweeks and weekends, claiming that this only promotes fatigue, primarily because the long workweek is followed by the short weekend under the proposal. They also objected to the liberal allowances proposed for long work schedules for Type 5 drivers (whose driving duties, limited to five hours a day, are only incidental to their primary duties). AHAS recommended extending the minimum recovery period by 24 hours to 56 hours, including three periods from 11 p.m. to 7 a.m. and reversing the alternating weekends so that long follows long, etc.

CRASH was pleased the agency was proposing to retain the 60-hours-in-7 day limitation, but stated that allowing incidental drivers to work up to 78 hours in a week was a grave mistake.

PATT recommended limiting driving to 10 hours out of allowable 12 hours on duty each 24 hours, and also put it another way, no more than 50 hours driving in 60 duty hours per week.

The NSC recognized the issue of cumulative fatigue and supported required time off after 7 days.

FMCSA Response:

The agency agrees with industry commenters' concerns that the proposed "fixed and recurring 7-day periods," within which duty limitations would apply, is simply not practical. The clear inference to be drawn from the "workweek" definition is that once a driver begins a workweek, for example, at 7:00 a.m. on a Monday, the next workweek would also have to start at 7:00 a.m. on the following Monday. When coupled with the required "weekend," carriers saw this as a huge infringement on their ability to maintain productivity. A driver in a weather-sensitive occupation could start work on Monday after a weekend off, then be idle for Tuesday and Wednesday due to rain, return on Thursday to resume the workweek with no credit for the Tuesday-Wednesday "weekend."

The flaws and unintended consequences in the proposed fixed workweek are undeniable. A strictly fixed workweek was what the agency intended, to be consistent with DOL regulations. Throughout the freight industry, particularly but not limited to the truckload sector, established workweeks are rare. Any attempt to "shoehorn" existing operations into some concept of what ought to be, as at least one commenter observed, is "fraught with peril." The resulting costs in lost productivity would probably outweigh benefits.

The NPRM did propose to place limits on on-duty time over the course of a seven-day period to prevent accumulation of sleep debt. Abandoning the idea of a fixed workweek means that an alternative must be found, and at least three are readily available. The first is to define the workweek in terms of time between "weekends." In other words, the so-called week would start to run after the accumulation of a stated period of consecutive off-duty time.

In terms of the NPRM, one alternative would allow the 32-hour period containing two periods between midnight and 6:00 a.m. to be used as a restart provision. In seeking clarification, the representative from the DLTLCA had pointed out that the proposal's "weekend" provision only made sense if it were treated as a restart. Whether the proposed "weekend" could survive as a restart mechanism, or whether another period would be preferable, are discussed elsewhere in this document.

The second alternative is to retain the limitations in the existing rules with adjustments, in order to redirect the restriction toward duty time rather than driving time. This option is similar to what private carriers proposed. The current rules restrict any further driving after a driver accumulates 60 hours on duty in a seven-day period or 70 hours on duty in an eight-day period. If the focus were to be on duty time, the restriction would simply limit drivers to 60 hours of any duty in a seven-day period and 70 hours in an eight-day period. This is the most neutral alternative. It would provide a floating block of time, as in the existing rules.

The availability for duty would be determined by looking back over the immediately preceding seven or eight days, similar to the way availability for driving is determined under current rules. Fortunately, potential negative impacts on productivity did not materialize. FMCSA found that in the 7-day option, for example, an LTL driver may routinely end a

run at the home terminal in the 60th hour. The driver's routine would include assisting in unloading, which is permitted under the existing regulations, and would continue to be allowed under the alternative being adopted today.

The third possibility is the ATA recommendation, which is more complex and requires some explanation. The first part of the proposed "weekly on-duty period" is straightforward. A driver may not be on duty more than 70 hours in any seven consecutive days. This would replace the current 60-in-seven and 70-in-eight restrictions, except that the ATA recommendation refers to duty time and not driving. The industry's interpretation of the 14-hour duty segment could also confuse the construct of a workweek. Use of the flex-time provision should eliminate this confusion. Under the ATA recommendation, the "seven-day period" would end with the beginning of 34 consecutive hours off duty. In other words, once a driver is off duty for a minimum of 34 consecutive hours another seven-day period would begin to run when the driver resumes work.

FMCSA calculates that if each 14-hour block of productive time were extended by an average of 4 hours to compensate for meal periods, rest breaks, and off-duty downtime at shipper facilities, the result would be six 18-hour "workdays" in the seven-day period. This example may be somewhat extreme, but no more so than some of the examples presented in the comments to demonstrate lost productivity.

The second part of the industry's "weekly on-duty period," i.e., the 14-day averaging option, is a little more complicated. The industry petition likened its 140-hours-in-14-days averaging option to the agency's proposed option for two-week averaging. Under the agency's proposal, long-haul drivers could opt to accumulate 72 duty hours in the first week, followed by 48 duty hours in the second week for a weekly average of 60 hours. The purpose of the agency proposal was to enable long haul drivers to use a short weekend while on the road and reserve a longer weekend for the time when they were in their home area. It was not well received for several reasons, particularly because of confusion about the "fixed workweek." Invariably, according to commenters, drivers would be stranded in a remote location and away from their families for their long weekend, a new version of Murphy's Law, apparently.

The industry averaging option would purportedly allow drivers to average 10 duty hours a day over a 14-day period by accumulating up to 84 on-duty hours in the first six days (6 days times 14 hours per day). After 34 consecutive hours off duty, the driver would then be limited to 56 hours on duty during the second seven consecutive days. If he accumulated those 56 hours in the following slightly more than three and a half days, he would have to take a minimum of nearly three full days off before driving again. If Murphy's Law held true, however, those drivers would still inevitably find themselves in a remote location for those three days. And the three days would be mandatory off-duty time, even under the ATA recommendation.

This flexibility could present enforcement problems, as drivers seeking to use the 14-day option could be found in violation of the 70-hours-in-seven-days restriction before they demonstrated compliance with the second week's limitation. Reversing the long and short workweeks could solve the enforcement problem, but it would become too complicated an issue for roadside enforcers. It would also require carrying 14 days worth of logs or using an on-board recording device capable of storing 14 days of duty-time records. Another issue would be the operation of the 34-hour off-duty provision as a restart under the ATA recommendation in the context of the 14-day option. Drivers and carriers could easily be confused after the second period and return to work after a 34-hour break without fully repaying the time owed from the first week.

Acute and cumulative sleep debt arises from sleep deprivation generally, and particularly loss of sleep during nighttime hours. The argument over workweeks places too much reliance on imperfect science. The comments of the ACOEM were particularly instructive in this regard. The ACOEM recognized that fatigue is an important concern for both safety and productivity in commercial driving, but cautioned against placing too much emphasis on what it considers incomplete science. Only the ACOEM recommended deferral of any further action on the proposal until an adequate scientific basis is available.

The agency agrees there is not sufficient scientific or operational justification for a fixed 7-day week. The economic impact of such a "week" on scheduling efficiencies and driver compensation is simply too great, given the uncertain benefits in fatigue reduction.

The agency has concluded that the current 60-hour-in-7-day and 70-hour- in-8-day limitations continue to be generally acceptable for CMV drivers operating in the United States.

Weekly Recovery Periods

General concept

Having already addressed daily off-duty periods, two related issues are dealt with in this section. They are weekly rest breaks or "weekends" and restart provisions. These concepts are related, but could have entirely different effects depending on how they are implemented. The mandatory weekend recovery period was perhaps the single most criticized element in the proposed rules.

In the NPRM, the agency introduced the concept of a weekly off-duty period or "weekend," which was intended to provide a regularly recurring opportunity to compensate for any accumulated sleep debt. The NPRM noted "the research indicates that to negate the effect of accumulated week-long sleep deprivation and restore alertness to the human body it is necessary to have at least two consecutive nights off duty."

Several commenters correctly pointed out that imposing a regulatory requirement for a weekly off-duty period containing two midnight to 6 a.m. blocks assumes that every driver is subject to weeklong sleep deprivation. The agency may have overreached trying to prevent the most extreme abuses by imposing restraints on the whole driver population. There are numerous examples in the comments and testimony to the effect that most drivers have ample opportunity for normal sleep every night and presumably would never be subject to severe sleep deprivation as a result of their working conditions.

The most frequent objections to the agency's "weekend" proposal, however, were the economic and safety implications of restricting nighttime driving. Comment after comment stated how requiring two consecutive nights off would create havoc on the already overcrowded highways in the daylight hours. The requirement would also, according to numerous commenters, disrupt current and entirely safe business operations and result in much greater replacement costs than forecast in the preliminary regulatory evaluation.

The proposal did not offer any opportunity for a restart of the weekly clock after a certain amount of consecutive off-duty time had accumulated. The agency even proposed to restructure the statutory exceptions in Sec. 345 of the NHS

Act, within the proposed weekend recovery period. The only reason for a restart provision is to allow increased productive time notwithstanding the general regulatory requirements when consecutive off-duty hours substantially exceed daily minimums. In other words, restarts are exceptions to the general rule. The agency considered a general 24-hour restart in 1992, but withdrew the proposal when it determined that there was insufficient data available to support the action on safety grounds. Comments to the NPRM raised the issue again, both in objecting to the treatment of the statutory exceptions and in offering an alternative to the agency's 1992 proposal.

Industry comments

The for-hire industry offered no alternative weekly or other greater-than-daily recovery period, except in the context of its two-week averaging alternative to cumulative restrictions discussed elsewhere in this document. Its 70-hours-in-7-days cumulative period would operate as the present regulations do, i.e., look back over the past seven days to determine if duty time is available to a driver. The DLTLCA petition did, however, request a cost/benefit analysis on an extended rest period within the range of 24 to 34 hours, which could then serve as a restart. The specific recommendation of the petitioners was for a 34-hour restart provision that would effectively end a consecutive seven-day period within which accumulation of duty time is taking place. Once the driver had been off duty for 34 consecutive hours, which would include a mandatory 10-hour daily recovery period, the petition argued that the driver should be considered fully recovered so that another seven-day period could start to run. The 34-hour period was conceived by combining one 10-hour off-duty period with one full 24-hour day, which could return the driver to the same cycle he was operating when the 34-hour period started. This could add an extra 14-hour shift every 7 days. It would also enable short weeks to be restarted. For example, a flex-board driver could be called in to work two consecutive days of 14-hour shifts at the beginning of a seven-day period and then be idle the following day. Once his off-duty time amounted to 34 consecutive hours, a seven-day period would begin all over again.

Landstar stated that its review of the available research and its experience lead it to believe the NPRM was flawed. Landstar cited Cabon, Mollard, and Coblentz, Sleep Deprivations and Irregular Work Schedules, Proceedings of the Human Factors Society 35th Annual Meeting - 1991, Paris, France and McCartt, Rohrbaugh, Hammer, and Fuller, Factors Associated with Falling Asleep at the Wheel Among Long Distance Truck Drivers, Accident Analysis and Prevention. Landstar used these studies to argue that "the research shows that a period of sleep, no matter how long, cannot 'reset' or restore the human body. Sleep, which has been 'lost', cannot be 'made up.' If an operator misses sleep, that missed sleep cannot be restored by a two day off-duty break. Studies also indicate that rest on the road is not the same quality of rest one experiences when at home."

Landstar also stated that "at the same time, 'missed' sleep is important. The effect of lost sleep is cumulative. The impact of lost sleep is compounded as an operator misses more and more sleep. Yet, when it is time for the operator to rest," Landstar cited Coleman, Richard, Wide Awake at 3:00 a.m. by Choice or by Chance, as showing "the length of his sleep is affected most by (1) his body time (i.e., where he is in his circadian rhythm) and (2) the cumulative amount of his sleep deprivation." Landstar argues that "when it is time for the operator to rest, once he sleeps for the length of time required by his body (as affected by his body time and amount of sleep deprivation), he is restored and ready to resume alert performance of his activities. In most every instance, the amount of rest required by an operator will be substantially less than the required 32 to 56 hour period set forth in this proposed rule."

Landstar stated that Cabon, Mollard, and Coblentz further "show that rest is affected not by the specific hours (i.e., midnight to 6:00 am) that one rests, but instead by an operator sleeping according to his own established regular schedule of working and resting, whatever that regular schedule may be for the individual operator. Studies show that it is irregular sleeping schedules that lead to troubles with biological rhythms. Sleeping according to the operators' established schedule provides rest, but sleeping during abnormal hours affects the quality of sleep and can cause sleep deprivation." In the context of earlier starting times, Landstar also found scientific support for the notion that regular hours of sleep, no matter when they occur, are preferable.

The NPTC alternative for private carriers contained no greater-than-daily recovery period, preferring to operate under the present rule's restrictions on cumulative operations. They did note, however, that "the flexibility to provide non-consecutive days off is critical to many private fleets and is adequate for drivers to achieve needed rest."

The OOIDA proposal specifically rejected any mandatory recovery period beyond the daily 10 hours of rest.

Safety Advocacy Groups

The AHAS believed a minimum weekly off-duty time block of 32 hours is too short to counter fatigue and sleep debt. They contended that drivers would regularly violate the "weekend" recovery period because of the difficulty of enforcement. They also concluded that even two consecutive nights off is inadequate to compensate for the accumulated fatigue caused by longer shifts. Finally, the AHAS recommended extending the minimum recovery period by 24 hours to 56 hours, including three periods from 11 p.m. to 7 a.m.

FMCSA Response:

The science supports the notion that drivers should be provided recovery periods after a sustained period of daily work to avoid the build-up of cumulative fatigue and/or sleep deprivation. This notion was the basis for the proposed rule that every driver must have a "weekend" off every seven days, i.e. a period of time including two consecutive midnight to 6 a.m. periods. The agency was attempting to ensure that drivers had a weekly opportunity to obtain restorative sleep and avoid a significant build up of a sleep deficit. Industry comments criticized what they considered the lack of scientific evidence to support the need for an extended period of rest. Depending upon the driver's schedule, a separate midnight-to-6 a.m. recovery period may be unnecessary, or it may be necessary after a period less than 7 days duration if the driver has been assigned night work.

The industry's position is that the required "weekend" reflects the agency's intent to significantly curtail nighttime driving. That is incorrect. The agency clearly stated in the NPRM that it was not acceding to the Expert Panel's recommendation on limiting nighttime driving. However, the NPRM with an off-duty period including two midnight-6 a.m. periods (effectively 11:00 p.m. to 7:00 a.m.) would have caused some displacement of drivers from nighttime duties.

The proposed rules contained a requirement for a daily recovery period providing the driver a regular opportunity to obtain restorative sleep and hence avoid acute sleep deprivation in large measure. In many cases, drivers can sleep every night; others obtain mostly nighttime sleep; and some rarely sleep at night. We know the science

indicates that, because of the circadian influence, sleep during daylight hours is generally less restorative than sleep at nighttime. That in itself can lead to sleep deprivation and consequent build up of sleep debt, but not always if carriers carefully monitor schedules to avoid too many successive nights of work and if drivers follow proper sleep regimen. The alternative would be to control the cause of sleep deprivation by limiting the hours that may be worked in a given period. Although there is nothing scientific or magical about seven days, the present rules have been employing that time period as a baseline for many years.

The present rules impose restrictions on driving after 60 duty hours in seven days for drivers of carriers who operate only six days per week, or 70 duty hours in eight days for those who operate every day of the week. Simply continuing those limitations in a revised proposal including a 10-hour daily recovery period in a flexible day should satisfy many carriers, particularly LTL carriers and local delivery operators. As noted earlier, the restrictions in the existing rules only apply to further driving, so that a violation of the rule occurs only when the driver begins or continues driving after the prescribed duty time has accumulated. Therefore, a driver could easily squeeze in a few more non-driving duty hours at the end of the workweek (or after 60 or 70 duty hours had already accumulated in the corresponding period).

An alternative would be to target accumulated duty time and apply the restrictions accordingly. That would mean that further on-duty time must cease when 60 or 70 duty hours within the corresponding period have accrued. The loss of those few additional non-driving duty hours would undoubtedly raise costs in some segments of the industry.

The ATA recommendation would combine the 60- and 70-hour limitations into one 70-hours-in-seven-days limit, and would apply it to all duty time. Therefore, the opportunity to squeeze in extra duty hours after completing driving responsibilities in the 70th hour would not be available. At least one carrier calculated that a limitation of 61.25 hours in seven days is the mathematical equivalent of 70 hours in eight days. It did not attempt to factor in the accrual of any additional duty time possible under the present regulations. The DLTLCA alternative also provided for a 34-hour restart, which would make it possible to accrue as many as 84 duty hours in any seven-day period. The ATA recommendation, therefore, would provide opportunities for considerable gains in productivity.

After reviewing the research, comments, and RIA, the FMCSA is convinced that a minimum 34 consecutive hours of off-duty time can begin a new 7- or 8-day period, during which a driver could drive or be on duty a cumulative total of 60 or 70 hours (i.e., the 7- or 8-day "clock" is restarted by a 34-hour off-duty period). The FMCSA selected 34 hours based on the industry's arguments that it be based on scientific guidance, operational needs, common sense, and realistic assumptions. ATA cited Carskadon and Dement, "Effects of Total Sleep Loss on Sleep Tendency," (1979) which they say suggests that people who have experienced total sleep loss, or have accumulated significant sleep debts over an extended period, may need 2 nights of sleep to completely recover. ATA also argued that "a recovery and restart period of 34 hours off-duty will allow a driver to have two uninterrupted sleep periods of 7-8 hours … Moreover, compliance with the minimum 34 hours would result in a driver restarting work at approximately the same time of day as his or her prior shift. This will avoid the shifting of daytime to nighttime schedules which research indicates can disturb the circadian rhythm and decrease alertness." This allows drivers to get at least two sleep periods, without restraining the driver by the unworkable midnight-to-6-a.m. period from the NPRM.

The PATT alternative did not provide a "restart" provision. The ATA alternative provided that drivers who obtain 34 consecutive hours of off-duty time could begin a new 7-day period, during which they could drive or be on duty a cumulative total of 70 hours (i.e., the 7-day "clock" is restarted by a 34-hour off-duty period).

The FMCSA is selecting its staff alternative incorporating a 34 consecutive hour off-duty time can begin a new 7- or 8-day period for the final rule because it provides the most favorable combination of increased driver alertness and reduced fatigue-related incidents.

Short Rest Breaks During A Work Shift

General concept

In proposing a daily work/rest cycle, the FMCSA stopped short of dividing the 24-hour period into two blocks (on and off duty), as was proposed by industry. The agency sought to place further restrictions on the 14-hour block. One of the reasons for the restriction was to acknowledge operational differences among motor carriers. Another reason was the proposed elimination of the distinction between driving time and other on-duty time. The principal reason, however, for reserving two hours out of the 14-hour block for rest periods was to ensure that road drivers, who spend most of their time in the driving mode, were afforded the opportunity to improve safety by alleviating potential drowsiness through strategic use of break time. The FMCSA assumed that drivers would rarely, if ever, spend an entire 14-hour period behind the wheel. There are simply too many naturally occurring personal and occupational demands that would require the driver's presence elsewhere. The FMCSA stated, therefore, that regularizing such personal time away from driving would not be a burden on productivity and would empower drivers to insist upon necessary break time.

ATA's recommendation

Behind the ATA's recommendation in converting to a 24-hour work/rest cycle was apparently the understanding that whereas 10 consecutive hours would belong to the driver, the remaining 14 hours belonged to the carrier. In the NPTC proposal, only nine hours would belong to the driver. As noted earlier, an aspect of the ATA recommendation that the FMCSA considered problematic is that personal breaks taken by the driver during the 14-hour block would only extend that block thereby upsetting the integrity of a recurring 24-hour work/rest cycle.

Other industry comments

Industry was uniformly opposed to mandatory rest breaks for a variety of reasons. The theme running through the comments was that the requirement is unnecessary.

The ATA advised the agency to promote, but not mandate, rest breaks that do not diminish driver's work time.

The PMTA commented that requiring rest breaks would cause driver shortages. PMTA stated there is enough time in the day for drivers to rest, if necessary, while maintaining a productive schedule. It also contended that the proposed rules do not enable drivers to take advantage of downtime at loading docks.

The NPTC asserted that mandating breaks interferes with the carrier's ability to manage distribution schedules. It also argued that the paucity of available rest areas would make it difficult to find a place to take breaks.

The National Soft Drink Association stated that required breaks adding up to two hours for Types 1, 2, and 5 are unnecessary and costly. It contended that breaks occur naturally throughout the workday.

The IBA also stated that flexible rest breaks were already being taken at the driver's discretion.

ARTBA found that the requirements for two hours of uninterrupted breaks and the 5-hour driving limit under Type 5 operations were both too restrictive and unwarranted intrusions by government into employer-employee relationships.

The Institute of Makers of Explosives observed that the Department's own Hazardous Materials Regulations requiring explosives-laden vehicles to be attended at all times precludes the mandatory breaks provided in the proposal.

Intermodal operators stated that mandatory breaks, along with the other proposed requirements, would adversely impact their operations, and probably cause many companies to go out of business.

American Freightways opposed mandatory breaks, believing that drivers should determine if, when, and for how long breaks are necessary.

ABF Freight Systems noted an inconsistency in the proposal. Although the proposal stated that Types 1 and 2 drivers are more likely to be involved in an accident, they are allowed to log breaks off duty, thus preserving on-duty time. Type 4 drivers, who go home and sleep in their own beds every night, are limited to 12 hours per day, including lunch and breaks.

Worldwide Van Lines supported the ATA's 14-10 breakdown so long as the 14 hours are productive hours. It might consider a one-hour break that is currently in vogue in the moving industry. It would prefer to allow carriers and owner-operators the flexibility to schedule rest periods consistent with safety and operational requirements.

Safety Advocacy Groups

Although supportive of rest breaks, AHAS had some reservations. First, It stated that drivers will abuse them and spend the time on non-driving duties, and second, it was concerned with a driver's post-nap sleep inertia and how it might contribute to a crash before the driver was fully awake after the nap.

FMCSA Response:

With a limitation of 11 hours on daily driving, the FMCSA believes the need for additional break time diminishes. Rest breaks are still a significant tool in combating fatigue and FMCSA will encourage their use. But the difficulty in enforcing required breaks reduces the likelihood of realizing the benefits intended.

The ATA and PATT alternatives did not incorporate any breaks occurring during a tour of duty. The FMCSA staff alternative provides that any breaks occurring during a tour of duty will not extend the work day.

Economic Impacts

Perhaps the gravest concern expressed by the motor carrier industry was the projected cost of the proposed rules. Virtually all of the industry commenters took issue with the agency's cost/benefit analysis, believing, for the most part, that the agency exaggerated the benefits in terms of accident avoidance and significantly underestimated the compliance costs.

Proposed Costs

Comments from the industry side reflected the common theme that the costs associated with the proposed rule were prohibitive, much higher than the costs projected by the agency. Predicted consequences were not limited to individual company failure, but extended to a ruinous impact on the economy. Other commenters lamented the economic condition of the motor freight industry, which they regarded as critical. Operating as they do on thin margins, many companies contended that they could not absorb the increasing price of fuel, let alone the regulatory costs proposed by DOT and OSHA (in its ergonomics rule).

The increased costs were primarily associated with the number of drivers and vehicles required to deliver the same amount of freight with what was perceived to be substantially reduced productive time allowable under the proposal. Estimates varied, but it appeared that most commenters arrived at their conclusions by applying a straight-line comparison of the maximum amount of productive time for each driver allowable under the present rules with the maximum duty hours stated to be allowable under the proposal.

Industry reaction

The position of the motor freight industry on the economic impact of the proposal was perhaps best summarized in the DLTLCA petition filed on November 29, 2000. This association represents regional less-than-truckload (LTL) carriers engaged in transportation and distribution of LTL freight locally and regionally. The petitioners found the preliminary economic evaluation, particularly the cost/benefit analysis, to be "woefully inadequate." They contrasted this effort with a study commissioned by the FHWA in 1980-1981 to assess the economic and safety impacts of proposed revisions to the HOS regulations.

Regarding the proposed rules, the DLTLCA surveyed 150 LTL carrier members, which concluded the proposal would increase costs by 5 percent. The regional LTL market is $10 billion and the national LTL market is another $10 billion. So that industry's estimated costs would be three times what the FMCSA estimated.

The ATA stated that the trucking industry employs 9.7 million people, including three million truck drivers, has annual revenues of $486 billion (1998 estimates) and logs 414 billion miles on the road each year (110 billion miles by large trucks over 16.5 tons).

The ATA reported the results of a survey it conducted of members, which estimated that the average loss of productivity would be 17 percent. ATA instructed the commenters to compare drivers' logs in actual operation with "what they think could be done under proposed rules."

The ATA also commissioned the National Economic Research Association (NERA) to review the agency's preliminary regulatory evaluation, particularly the cost/benefit analysis. The entire NERA report was submitted to the docket by the ATA, but the primary findings are set forth here for ease of reference:

(1) The FMCSA's economic analysis failed to support the proposed rule. After corrections for what were identified as methodological and mathematical errors and omissions, NERA's economic analysis determined that the cost of the proposed rules were more than five times as large as the benefits – for a net loss of $15.4 billion over ten years;

(2) The FMCSA's bundling of the rule's components obscured the Administration's own findings. Separating the costs and benefits associated with the paperwork reduction component of the rule revealed that the rule's other components – a reduction in driver's hours and an on-board monitor requirement – failed a cost-benefit test, even based on the FMCSA's own assumptions ;

(3) The FMCSA understated the costs of compliance by underestimating the number of new truck drivers required; by ignoring the cost of non-wage benefits, recruiting and training, additional trucks, and supporting personnel and infrastructure; and

by underestimating the costs of on-board monitoring equipment. Correcting for these errors increased the cost of the proposed rule by $15.7 billion over the next 10 years. NERA considered this to be a conservative estimate, as many other costs, which are difficult to quantify but which could be substantial, were not included;

(4) The FMCSA overstated benefits by overestimating the number of fatal crashes attributable to truck driver fatigue. Once the baseline was adjusted for crashes from other causes, benefits fell by $3.1 billion over 10 years. NERA estimated that the proposed rule would lead to approximately 19 avoided fatalities per year, compared to the FMCSA's finding of 115 per year;

(5) The FMCSA failed to substantiate the rule's potential effectiveness. The Administration stated the number of fatigue-related fatalities would fall by 20 percent – without reference to any specific studies or statistical support. In fact, available crash statistics indicate that only 3 percent of fatigue-related fatalities can be attributed to drivers driving more than 12 hours; and

(6) The FMCSA failed to recognize the negative consequences of the rule for small regional and long haul trucking companies. Many of these companies operate on thin profit margins and face competition from other modes unaffected by the proposed rule. These companies also face increased costs from other proposed regulations, such as OSHA's ergonomics rule. Consequently, they could not readily absorb additional costs or easily pass additional costs through to their customers.

The ATA argued that the agency ignored numerous factors when conducting its benefit-cost analysis, including the number of new drivers, additional wages, driver non-wage benefits, recruiting costs, additional equipment, supporting infrastructure costs, additional maintenance, insurance premiums, LTL restructuring, electronic on-board recorder (EOBR) purchase and maintenance, and increased inventory carrying costs. The ATA did not rely exclusively on the NERA report for this criticism, particularized in its comments, and was even critical of NERA for being too conservative.

Other industry comments

Although many motor carriers estimated substantial costs arising from various aspects of the proposal, their computation methods were not always clearly articulated.

Covenant Transportation, a truckload carrier, shed some light on the methodology used by many carriers to estimate the costs of the proposal on their operations. Covenant compared the number of productive hours per month available to a driver under the existing rules (280) with the number of productive hours it stated would be available under the proposed rules (240) and arrived at a difference of 17 percent. It did the same comparison for vehicles and concluded that 17 percent more trucks would be needed. Covenant opined that converting to relay operations would not work. The loads do not match up. It stated the trucking "industry is very, very sick." The new rules would drive the small operators out of business. The main cause of sickness, according to Covenant, is driver pay. The company increased pay four times in the last four years so that the average at the time it submitted comments was about $42,000 per annum, which it said was not enough. Whatever enough may be, "until you reach that magic number, turnover will continue to kill you."

J.B. Hunt Transport, Inc., a carrier with one of the largest truckload operations, found that if the proposal were not amended, productivity would decrease 2 percent on face value. That estimate was based on comparing 61.25 hours a week permitted under the present 70-hours-in-8-days limit with 60 hours in 7 days as proposed, but noted that this was only the surface. The biggest negative impact would come from the rigidity of the proposal. The loss of flexibility, if not corrected, would cost Hunt an estimated $250 million per year and increase rates to customers by an estimated 20 percent.

Contract Freight, Inc. (CFI), a large truckload carrier, did an analysis by mile, which it noted is the bottom line in trucking. Comparing logbooks of current drivers with what CFI could project under the proposed rules showed a 13 percent reduction in miles. CFI also included logistics costs, relocating facilities, positioning drivers, etc. that would add another 7 percent reduction in miles. To move the same amount of freight that it does with 2100 tractors, CFI estimated that it would need 400 more, and with a ratio of 2.9 trailers to each tractor, CFI would need almost 1200 more trailers. CFI stated that it used to do the most relays of any trucking company, but believed that it would not be possible to do the same volume of relays under the NPRM. CFI calculated average driver trips for one of its "priority teams," which runs about 18,000-19,000 miles per month. An average single CFI driver runs about 10,500 miles per month, while a low producing single CFI driver will run about 9,000.

Schneider National, Inc. with its affiliated companies employ in excess of 15,000 drivers with a fleet of over 13,000 tractors and 34,000 trailers. Schneider stated that the FMCSA dramatically underestimated the financial costs of its proposal and, by focusing only on fatigue-related crashes, FMCSA also failed to recognize that the proposal might result in an increase in the number and severity of other accidents if the proposal were implemented as drafted. The limitation of 12 hours on duty in any 24-hour period, together with the "weekend," will reduce productivity by 25 - 30 percent and require an additional 100,000 inexperienced drivers and vehicles to move the same amount of freight.

Werner Enterprises, Inc. operated 7,425 trucks, 6,225 of which are company-owned and 1,200 of which are independent contractors. Werner stated that the proposal was at best safety neutral, but extremely costly. It supported ATA's analysis of the proposed rule and did provide some detailed analysis of the economic impact of the proposal on Werner and its drivers. Arriving at a 20 percent productivity decrease, meaning also that drivers would lose 20 percent of their income, Werner projected an annual operating cost increase of $290 million. If Werner were to stay in business, these costs would have to be passed on to shippers and consumers.

Bestway Express, employing 325 drivers, cited the U.S. Chamber of Commerce's crediting of trucking for the sustained economic boom through calendar year 2000, noting that efficient transportation took 5 percent off the cost of consumer goods. For the industry as a whole, Bestway stated that the proposal would add $100 billion for inventory costs, $50 billion for additional trucking services, $25 billion for inventory carrying costs and that it would cause U.S. jobs to be lost to Mexico.

NASTC stated that under current rules, a driver could drive up to 15 hours in any given 24-hour period, giving him a range of 750 miles. Under the proposed rule, his range would be reduced to 600 miles. Because of a "pay-to-wait" provision, a requirement in the proposal to log waiting time as on-duty time, NASTC predicted the productivity loss could go to 25 to 33 percent.

The ATC Leasing Company stated that it represents a majority portion of the truck transport industry in the country. It involves the drive-away operation of newly manufactured trucks from factories to dealers or to intermediary facilities for modification. In 1999, ATC reports that 540,443 Class 5 through Class 8 vehicles were produced in the United States. ATC estimates it delivered approximately 75 percent of those vehicles. The vehicles are usually delivered in saddle-mounted combinations with a to-be-delivered truck as the power unit. Upon reaching his delivery destination, a driver typically removes the temporary identification devices and proceeds by public transportation to his next pick-up point.

State trucking associations generally concluded that the proposal did not account for significant costs.

The U.S. Chamber of Commerce believed the FMCSA's estimate of costs per driver was unrealisticly low.

The Intermodal Association of North America's (IANA) survey reported direct operating cost increases of 20 to 30 percent, primarily from the reduction of on-duty time limits from 15 to 12 hours a day and the mandatory off-duty periods when shifting from one type to another.

Advocacy Groups

The Mercatus Center of George Mason University conducts a Regulatory Studies Program (RSP) dedicated to advancing knowledge of the impact of regulations on society. The proposed HOS rulemaking for truckers was chosen for such an assessment, and the resultant report was submitted as a comment to the docket. It concluded "the DOT and FMCSA estimates of the likely effects of the proposed regulation are tenuous if not faulty on a number of bases."

The RSP recommended better enforcement of current rules. Built-in flexibility and common sense rules appeared to RSP to present a better field for improving highway safety.

The National Sleep Foundation described the NERA study submitted by ATA as nothing more than an advocacy piece that failed to look at alternative scenarios. The NSF considered the analysis in the report to be a series of conclusions and self-serving narrative with no quantification.

Safety advocates and other public interest groups faulted some of the methodology used by industry to compute expenses and were critical of industry's lack of foresight in adapting to change and in confronting the inefficiencies they state are so prevalent in dealing with shippers and receivers.

Proposed Benefits

In addition to criticizing the NPRM's cost calculations, many commenters also found fault with the allegedly overestimated benefits. The industry in general took issue with the figures used by the agency in projecting the safety benefits to be gained from the proposal. Although acknowledging that there is a serious fatigue-related safety problem, they stated that it does not approach the magnitude assumed by the agency to justify the draconian solutions proposed.

A basic reaction to the proposal was the issue of problem identification, and many distanced themselves from what they said was the core problem group: long-haul, for-hire freight carriers. The motorcoach industry was particularly adamant about the elemental differences between hauling freight and transporting passengers. They did not argue, as others did, for an exemption from regulation, rather they insisted that no evidence had been developed or presented indicating there was any safety problem arising from bus industry performance under the existing regulations. Therefore, in their view disruptive change was totally unwarranted.

Short-haul distributors of wholesale and retail commodities distinguished themselves from long-haul carriers and cited the agency's own studies showing a lesser safety problem in their operations. The construction industry, for example, noted that its truck operations are short-haul, sporadic, and incidental to other functions, and therefore are not at risk to accumulate fatigue while driving. Construction industry commenters also stated that the NPRM would actually impede safety by extending the time construction zones remain open and delaying the completion of safety improvements being made to the highways.

Utility companies strongly contend that the nature of their work and services warranted total exclusion from HOS regulations. Limiting the ability of utilities to respond to service interruptions would be much more likely to create other safety problems than to prevent crashes involving responding vehicles, they stated.

LTL carriers, where union representation is more prevalent, commented their drivers' schedules conform to the existing rules. The carriers believe these schedules, negotiated with the drivers through the IBT, eliminate many of the fatigue-inducing factors while preserving the needed flexibility that they find so lacking in the proposal.

The LTL industry believes that if particular segments of the regulated community are already performing safety at or close to the maximum allowable hours under the existing rules, there could be no benefits from changing the rules applicable to them, only costs.

As noted above by the NERA and RSP analyses, as well as other commenters, most of the benefits cited by the NPRM involved paperwork savings, which are not safety improvements. Virtually every commenter who noted the understated costs of increased drivers and equipment needed to implement the proposed rules also noted that the NPRM did not account for the safety impact of more trucks and more inexperienced drivers on the highway at more congested hours of the day.

Industry commenters cited studies done by and for the DOT showing fatigue to be a factor noted in police reports in only 1.5 to 3.0 percent of all truck-involved fatalities. The ATA and others pointed out what they considered a basic flaw in the agency's calculation of lives saved by the proposal, i.e., 20 percent of the fatalities attributable to fatigue. Some commenters noted that, even using what they considered an inflated attribution, other agency studies show the truck driver to be at fault in no more than 30 percent of truck-involved crashes. Therefore, instead of using 775 fatalities resulting from fatigue related crashes as the basis for arriving at 155 lives saved (20 percent), the agency should have used only 30 percent of the 775 figure, or 233. Computing its stated 20 percent reduction from that figure produces a maximum of about 47 lives saved.

The ATA pointed out what it considered additional flaws in the FMCSA's computation of projected benefits, including these four:

(1) FMCSA overestimated the role of fatigue in truck crashes. The agency estimated 15 percent of all truck-involved fatal crashes were "fatigue-relevant," a new, non-scientific term coined by FMCSA for this rule. The 15 percent figure combined the 4.5 percent of those crashes where fatigue was the primary cause with another 10.5 percent where fatigue was assumed to have contributed to mental lapses that caused the crash. Citing several studies in the DOT database, the ATA believed the range is 2.8 to 6.1 percent, 4 percent on average, but strenuously objects to inflating that figure by including fatigue involvement in mental lapses, inattention and distraction.

(2) FMCSA failed to use the proper baseline number of fatalities in its cost/benefit analysis. The agency used 5,035 (average of all truck-involved fatalities from 1991-96) as the basis for its estimates of crash elimination benefits. However, driver error is not the cause of all fatal crashes (maybe 90 percent), nor is the truck driver at fault in more than 30 percent of multi-vehicle truck-involved fatalities. Citing FMCSA and UMTRI studies, ATA considered 942 to be the proper baseline number for multi-vehicle, fatal-to-non-truck-occupant crashes and 800 the proper number for single-vehicle, fatal-to-truck-occupant crashes. The baseline fatality number should be between 200 and 240, instead of FMCSA's base of 755;

(3) FMCSA used effectiveness assumptions which ATA contends could not be viewed as reasonable or even possible. ATA contended the agency stated the proposal would be 5 percent effective with Type 3, 4 and 5 drivers. ATA claimed the agency included no cost figures for this category, saying that for the majority of drivers in compliance with existing rules the costs would be minimal. ATA objected, finding the two assumptions inconsistent; and

(4) FMCSA ignored the best available compliance information. The agency relied on three different surveys to support its contention that a "significant percentage" of drivers violate the HOS regulations. ATA claimed FMCSA has data from thousands of compliance reviews that it totally ignored. Instead of asking for data and analysis from the public on an array of issues, FMCSA ought to analyze the best compliance data available – its own completed compliance reviews.

Many of the industry comments about overstated benefits could be summed up in the comments of the Minnesota Trucking Association: "The proposal will not have the intended safety benefits because DOT failed to consider the law of unintended consequences:

(1) DOT failed to account for the accident exposure from over 48,000 new trucks needed to move the same amount of freight;

(2) The proposed rules would cause greater congestion in urban areas both from the greater number of trucks, and more trucks shifted from nighttime hours due to the mandatory 'weekends'; and

(3) The proposed rules would cause a dramatic increase in the number of young, inexperienced drivers on the road creating even greater risks of accidents."

Safety Advocacy Groups

The IIHS disputed the figure of 49,000 new drivers as too many because it does not account for efficiencies and old drivers returning for better working conditions.

AHAS criticized the agency's economic analysis because it failed to measure proposed rules against the existing rules, "as most agencies do." AHAS agreed with the FMCSA's finding that the contribution of fatigue to crashes has been undervalued and cited the Australian parliament's massive report finding that 20 to 30 percent of road accidents involve driver fatigue. One cannot rely on police reporting because police are unable to detect or infer fatigue as a triggering factor.

CRASH observed: "Trucking deregulation, a booming economy and the concepts of 'just in time deliveries' and 'rolling warehouses' have produced a deadly trend in the commercial trucking industry." Truck drivers are exploited by pressuring them to speed and drive over the legal HOS limits. CRASH stated that NHTSA and NTSB have documented that driver fatigue is a major factor in 15 to 40 percent of all big truck crashes.

PATT argued that truck drivers provide labor for which they are not adequately remunerated, that such labor is a major contributor to fatigue and that such labor practices have continued too long without resolution. It stated the basic rule in the industry should be: "Shippers count, load, and seal – drivers drive – receivers count and unload."

The CVSA stated that the proposal relied too heavily on relative exposure rather than on relative risk, which appeared to them to be the same across all types of operations.

The NSC claimed that the NHTSA data attributing 2 to 5 percent of accidents to driver fatigue is more reliable, and that the FMCSA's estimate of 755 fatalities is inflated. Until the agency completes fundamental accident analysis studies, NSC believes the agency must rely on FARS; therefore, it must stay with no more than 5 percent or 250 fatalities. It recommended an external panel of experts to establish a lower and upper bound of the fatigue problem, in which the NSC would be glad to participate. It also recommended a cost/benefit analysis similar to the one prepared by Booz, Allen & Hamilton, Inc. for the FHWA on May 28, 1981.

FMCSA Response:

Although it appears that the agency underestimated costs in its economic analysis, it is also clear that industry overestimated costs in its comments. The ATA instruction to carriers responding to its survey was to compare drivers' logs in actual operation with what they think could be done under proposed rules. The comments from individual carriers indicated that some followed the ATA instructions, but many others merely assumed that every driver was presently using all available hours. Other comments make it clear that this was not the case. Stating that a reduction in allowable duty hours from 15 to 12 represents a 20 percent loss in productivity when drivers rarely work the 15 hours, is a clear overstatement.

The examples offered throughout the comments, moreover, generally presented worst case scenarios. In nearly every case when a carrier stated it could not complete a run under the proposed rules, it also stated it would have to add a truck and driver to continue that run. Otherwise, it would lose the business. Rarely was there any attempt to reconcile operations or schedules with the proposed rules, or to suggest minimal changes that could make them work. For example, an LTL carrier reported that its drivers double as dock workers. They normally drive up to five hours from a hub to a terminal, load or unload for two to five hours, and then drive back to the hub in up to five hours. The carrier believed it would have to hire twice as many drivers and make them stay overnight at the terminal, because it could not complete those runs under the proposed rules. No mention was made of relieving the driver of loading/unloading responsibilities; shortening the time the driver has to spend loading or unloading by providing some help at the terminal; or otherwise adjusting operations at the terminal so that the driver is not detained as long, rather than literally doubling the number of drivers.

The case for the truckload segment, particularly the small, irregular-route carriers, is more problematic, especially if the sleeper berth provision in the proposal were not adjusted. J.B. Hunt computed the basic productivity loss from the proposal to be two percent by comparing the average allowable workweek (seven days) under the existing rule (61.25 hours) with that proposed (60 hours), but it also found a much greater loss from the lack of flexibility. Although further examination of the impact of flexible alternatives on the operations of large truckload carriers would have to be done, much of this greater loss could apparently be mitigated.

NASTC, representing small carriers, based its analysis of lost productivity on a comparison of a daily range of operation. It stated that under the present rule a driver could drive up to 15 hours in any given 24-hour period, giving him a daily range of 750 miles. This could only be accomplished under full exploitation of an alternating 10-hours-driving, 8-hours-off schedule. Under the proposed rule, NASTC stated the same driver's daily range would be reduced to 600 miles. Projecting the NASTC driver's schedule over longer periods of time, the average difference in the daily range would undoubtedly come closer to Hunt's two percent. The NASTC driver, however, would have to work more days in the week. The NPRM may also cause lost opportunities.

NASTC predicted the productivity loss could go as high as 25 to 33 percent because of the requirement in the proposal to log waiting time as on-duty time. This was not an absolute under the proposal. A driver could log up to two hours waiting time as break time, provided it qualified as off-duty time. If it did not, it must be logged as duty time even under the existing rules.

The NPTC offered no explanation for its position that anything less than a 15-hour workday for private carriers could not survive a cost-benefit analysis. It did not appear to relate to the lack of flexibility in the proposal, but rather to an assumption of inflexibility in private carrier operations. Drivers for private carriers could not sustain a 15-hour day schedule for very long under the present rules without coming afoul of the seven- or eight-day limitations. This issue would require additional attention to learn the particulars of their position.

Although the NERA study made some valid points about errors in the agency's analysis, its own analysis of the costs of the proposal was not based on any independent findings regarding industry practices. Rather, its conclusions appeared to be based on assumptions provided by its industry sponsor. It also cited the results of the ATA survey as the basis for its estimate of the degree to which the FMCSA had understated the costs for additional drivers and equipment. Similarly, the review performed by the RSP, which appeared to misunderstand part of the proposal, did not rely on independent examination of industry practices. Neither the ATA nor any of the other associations proposing alternative rules made any attempt to quantify their related costs or benefits.

On the benefit side, industry severely criticized the agency's reliance on "fatigue relevant crashes" to increase the pool of fatalities from which it could draw an estimated benefit (fatalities avoided) from the proposed rules. The NTSB uses the phrase "fatigue-related" in its reports and recommendations involving human fatigue. The IIHS and the safety advocates, although not supporting the agency's methodology, stated the FMCSA arrived at an accurate number of deaths caused by fatigue related crashes, and would have done so had it used the methodology discussed earlier in this document, namely "population percent attributable risk calculations" taking the increased risk of crashes from driving longer hours and placing it into a formula together with the rate of drivers driving longer hours. Industry, however, also noted that the agency should have at least reduced the number of those fatalities by applying a percentage equal to the ratio of collisions determined to be the fault of the truck driver, about 30 percent. The agency notes there is a big difference between the "at fault" crashes the industry uses and the "contributed to," "fatigue relevant," and "fatigue-related" crashes the agency, safety advocates, and NTSB use.

Industry was also critical of the agency's overreach in stating benefits from the use of EOBRs by reducing the level of non-compliance, an estimated level that industry stated was far too high. The public interest commenters observed that the evidence of non-compliance was very strong, and even drivers and owner-operators agreed that daily logs are routinely abused.

In conducting the RIA for this final rule, the FMCSA used a more conservative approach to estimating fatigue-related crashes and how benefits would be reduced if the number of fatigue-related crashes were smaller. See the RIA's Section 8.2 for a discussion of the estimates of the number of crashes involving trucks, by severity of crash. In addition, it discusses methods for estimating the percentage of crashes attributable to fatigue, and the results of applying those methods.

In determining the effects of the HOS rules on the mode split between truck and rail (which was not done for the NPRM), we used the Logistics Cost Model (LCM) developed by Paul Roberts. The LCM is a computer model that determines the total logistics cost of transporting a product from a vendor to a receiver. It is an updated variant of models developed by Mr. Roberts for the Association of American Railroads (AAR) and the FHWA. The model determines the lowest cost for ordering, loading, transporting, storing, and holding a product. The models assumes the shipper selects the alternative that minimizes total logistics costs. Total logistics cost in this case may include the costs occasioned by service frequency, transit time, reliability, loss and damage, spoilage and other service-related factors occurring during ordering, transport or storage. By converting all of these factors into their quantitative impacts on total logistics cost, the analysis can address the tradeoffs among service quality, inventory carrying and transportation charges.

The mode shift analysis was limited to movements of 250 miles or more. The RIA did this because the probability of switching traffic from truck to rail is effectively zero for moves under 250 miles. Most authorities would assert, in fact, that this probability is quite low for shipments under 500 miles. Two hundred fifty miles was chosen for the RIA as a minimum, however, to ensure a thorough analysis.

The RIA exercised the mode shift model over a range of changes in trucking rates from a 2.0 percent decrease to a 2.0 percent increase. From this analysis, the RIA was able to estimate a price elasticity of (1.4). This means that, for a 1.0 percent change in trucking rates, there is 1.4 percent change in truck shipments, truck shipments increasing with a rate decrease and diminishing with a rate increase. This measure of elasticity was used, in turn, to estimate impacts on truck and rail traffic for each of the HOS rule alternatives. Details of the computational method and data used are presented in the RIA's Appendix D.

In addition to calculating the social costs, benefits, and net benefits of the alternatives, the RIA also considered the impacts on the carriers, and on the economy as a whole. The changes in labor productivity, costs for labor and other inputs, and changes in the mode split between truck and rail were disaggregated to six regions and fed into the REMI Policy Insight™ regional economic model (developed by Regional Economic Models Incorporated). The model's outputs give an approximate picture of the relative effects of the alternatives on economic growth and employment across the country.

The RIA found that the PATT alternative would be more expensive to comply with than current rules, especially for short-haul operations, while the ATA alternative would be less expensive. The FMCSA staff alternative would be more expensive for short-haul operations, though it would be less expensive overall due to its savings for long-haul operations.

The basis of the benefits analysis is the estimation of the total number of crashes involving vehicles subject to the rule, the damages imposed by those crashes, and the assessment of the percentage of those crashes and damages attributable to fatigue. The FMCSA found an estimated 8.15 percent of the total crashes and damages result from fatigue. Thus, the total damages from fatigue-related crashes have a value of about 8 percent of $32 billion, or about $2.5 billion per year. Excluding a fraction of crashes that occur in operations that would be little affected by the changes in the HOS rules, the fatigue-related crashes subject to the alternatives are estimated to impose costs of about $2.3 billion per year.

The analysis of the effects of the rules and alternatives on crash risks showed that these damages could be reduced substantially. The percentage of fatigue-related crashes is substantially higher in long-haul than in short-haul operations. Similarly, the changes in fatigue-related crashes attributable to the alternatives are greater in long-haul than in short-haul. These differences result from the more arduous schedules that long-haul drivers currently have, and from the effects of the rules and alternatives on those schedules.

The ATA alternative provides net benefits in both long-haul and short-haul operations, though its net benefits are much greater in long-haul. Similarly, the PATT alternative has much smaller net costs in long-haul than in short-haul operations, and the FMCSA staff alternative has net benefits in long-haul that are partially offset by its net short-haul costs.

The observation that the alternatives are less cost-effective in short-haul operations was part of the motivation for providing more flexibility in the FMCSA staff alternative for short-haul drivers, allowing one 16-hour shift per week. The RIA assessed the effects of this flexibility by examining the costs and benefits of the staff alternative without allowing any 16-hour shifts.

Our analysis showed that, for short-haul operations, this change would more than triple the annual costs of the FMCSA staff alternative relative to the current rules with full compliance. Costs would increase from $168 million to $641 million, or by almost $500 million per year. These additional costs would translate almost directly into a reduction in net benefits, because the effects of the reduced flexibility on crashes would be very small. The FMCSA estimates that, because the increase in the need for new short-haul drivers would more than offset the slight reduction in fatigue, prohibiting any 16-hour shifts would actually worsen the crash-reduction benefits slightly: total benefits would fall by about $10 million per year, and fatalities would rise by one or two per year.

With this change to the FMCSA staff alternative, its net benefits compared to current rules with full compliance would drop to about half a billion dollars per year.

The analysis of the economy-wide changes revealed that, as expected for a set of rules that has moderate effects on an industry that itself is only one component of the economy, the alternatives would cause changes well within one tenth of one percent of total employment, gross domestic product, prices, and disposable income. The impacts on carriers were more noticeable, with the PATT alternative imposing net costs and the ATA and FMCSA staff alternatives having small positive effects on net income and profitability.

Electronic On-Board Recorders (EOBRs)

The FMCSA based the proposal to require EOBRs for Type 1 and Type 2 operations on two facts:

(1) Data indicated that fatigue-related crashes are much more likely to involve long-haul drivers than local or short-haul drivers; and

(2) Data indicated there is substantial non-compliance with the hours of service regulations, particularly among some segments of long-haul drivers.

The agency assumed that:

(1) EOBR-equipped vehicles used in long-haul movements would significantly improve compliance, which the agency demonstrated in a pilot project ;

(2) Improved compliance by long-haul drivers with HOS regulations would help reduce fatigue-related crashes; and

(3) Conforming devices would be available in a sufficient supply at reasonable cost.

On-board recording devices have been in use at least since 1985, when the agency granted a waiver to Frito-Lay, Inc. (50 FR 15269, April 17, 1985) to allow their use as a substitute for handwritten records of duty status. The agency is also aware of substantial investments since the late 1990's made by motor carriers in on-board technology for tracking cargo and equipment performance. Global positioning systems are increasingly in use, and the agency is piloting the application of such a system to monitor drivers' compliance with the HOS rules in cooperation with a large truckload carrier. The agency also believed that once it issued a mandate, market forces would assure that EOBRs would become increasingly available. To allow time for this to happen, the NPRM proposed a phase-in period within which to comply.

The FMCSA also believed that the presence of EOBRs on the vehicles would facilitate enforcement both by reducing the time required to inspect records, and improving the quality of the evidence upon which compliance with the rules would be determined and, when appropriate, violations charged.

Industry comments

The industry was not uniformly opposed to the EOBR provision. The ATA raised numerous objections. Several large carriers, however, and even an ATA State association, supported the initiative subject to certain conditions. The industry objections primarily revolved around four concerns:

(1) Many commenters believed that the NPRM failed to consider or understated per-unit costs and other related costs;

(2) Many commenters considered the ability of the available technology to track individual drivers to be suspect;

(3) Several commenters noted that the level of compliance they already achieved, or the rarity of occasions when their drivers would be subject to the requirement, rendered the EOBR requirement irrelevant or redundant in their situations; and

(4) Many comments expressed concern about the use by law enforcement and others of the information incidentally obtained through the EOBRs unrelated to HOS compliance.

The ATA's primary position was that the agency underestimated the costs of the technology and overestimated the benefits. The ATA faulted the agency for proposing the use of devices, while ignoring the promising applications of fatigue monitoring devices to prevent crashes and "black-box" technology to evaluate crash causation. The ATA noted that the agency neglected to include costs of both the "smart card" adaptations, which may be the least expensive means of maintaining driver identity in a mobile industry, and the back-office integration into the carriers' computer systems.

The ATA claimed that the FMCSA reversed its position on EOBR requirements because it first issued a final rule allowing on-board recorders as an alternative to records of duty status on May 19, 1988, 53 FR 18058, and then denied a petition from the Insurance Institute for Highway Safety to mandate use of on-board recording devices. The ATA faulted the FMCSA for failing to gather any data during compliance reviews from the thousands of EOBRs that are

presently in use, which might have supported the agency's claim that EOBR use would improve compliance. The ATA noted that the information EOBRs would be required to gather under the NPRM does not even include an identification of the driver.

The ATA contested the claim that EOBRs would facilitate enforcement at roadside. According to ATA, the experience reported by enforcement personnel is that EOBR records are more difficult to review. The ATA argued that the FMCSA overlooked the biggest shortcoming of EOBRs—they do not track what a driver is doing when the vehicle is stopped and the engine is shut off. The ATA was critical of present methods that do not discover intentional lawbreakers, who know how to avoid detection. The ATA noted that the agency even failed to address the issue of off-duty driving of the truck, so that a trip to the diner or to a movie theater could very well be recorded as driving time and possibly result in a violation.

The ATA noted that the phase-in schedule belied the agency's contention that safety benefits will flow from improved compliance. The proposed schedule gave small carriers, the least compliant segment of the industry, according to an ATA study of FMCSA's Motor Carrier Management Information System (MCMIS) data, more time than the large carriers, the most compliant.

The ATA criticized the FMCSA for failing to evaluate potential risks of requiring drivers to manually enter location codes when crossing state lines in spite of NHTSA's concerns about driver distractions.

The ATA expressed its disappointment with the lack of discussion of privacy concerns or limitations on the use of data for purposes unrelated to regulatory compliance. It also suggested that the proposal could be subject to legal challenge based on U.S. Supreme Court decisions defining the parameters of lawful, warrantless searches in closely regulated industries.

The ATA accused the FMCSA of violating advice from ITS America, an advisory committee to the DOT, and particularly Principles 1, 5, 6, and 7 of the Fair Information Principles for ITS/CVO.

Other industry comments

The State trucking associations were not unanimous in their opposition to the EOBR provision in the proposal. Many did not comment on this issue, perhaps relying on the ATA, their national representative, to express their views.

The Arkansas Trucking Association unanimously supported the required use of EOBRs. It was particularly persuaded by the opportunity to replace a very expensive and inefficient paperwork system. It recommended to its members that EOBRs be installed and maintained in all CMVs over 26,000 pounds. The members reportedly were tired of competing with cheaters, and believed that EOBRs would provide a level playing field.

CTA supported the use of time recording devices (not necessarily an EOBR) for all drivers and trucking operations only under the following six conditions:

(1) The implementation of EOBR devices must be the same for all carriers;

(2) The time recording device must be readable at roadside inspections by law enforcement officials;

(3) The data obtained from a recording device must be used by law enforcement officials for HOS enforcement purposes only and not for reconstruction of other events or operations;

(4) The recording device must identify individual drivers and include the option of personal technology devices, as well as EOBR's installed in the vehicle;

(5) There must be an investment tax credit for purchase and installation costs associated with the recording devices, retroactive to existing devices; and

(6) The mandatory record retention period for recorded data must not exceed six months.

CTA opposed the use of additional information that may be recorded to enforce other statutes not relative to a driver's HOS. CTA believes that due process and driver privacy require this consideration.

The PMTA, on the other hand, reported that many of its carriers believed EOBRs would be redundant for their type of operation, under which drivers' HOS are already closely controlled or monitored. The PMTA recommended assembling a multi-disciplinary committee to hammer out HOS reform regulations.

The large truckload carriers were somewhat divided over the provision, but several supported it.

J.B. Hunt believed that EOBRs would ensure compliance with HOS regulations, but attached certain conditions to its support:

(1) They must be required of all carriers at the same time;

(2) Their use must be limited to immediate enforcement of compliance; and

(3) They must have legally enforceable prohibitions on the use of EOBR data for other purposes.

J.B. Hunt also suggested that EOBRs should be phased in based on a motor carrier's safety performance, using Safestat as a reference, so that the worst performing carriers would be required to comply earlier, e.g., "A" list first, then "B" list, etc. It also urged the FMCSA to set performance standards that allow for innovative technology.

M.S. Carriers (M.S.) found the EOBR proposal to be basically sound, but believed the FMCSA should require standard equipment in all CMVs so it could be used interchangeably. M.S. also recommended a condition that information from these devices could not be used in court.

Schneider National, while not in outright support of the provision, felt that if EOBRs were to be required, implementation should be the same for all commercial fleets, regardless of size.

U.S. Xpress Enterprises believed it would be prudent to separate out the EOBRs from the rest of the proposed rules because "black boxes" perform a variety of functions. They suggested it would be better to combine all functions in a single device and test them so everyone could get the ultimate benefits. They noted, for example, that the NTSB is very interested in getting black boxes installed for crash investigation purposes.

Landstar believed the implementation schedule for EOBRs would be unfair to owner-operators leased to larger carriers because they would have to meet a more expedited schedule by reason of the size of the carrier to which they lease. Landstar also supported requiring EOBRs on a performance basis, e.g., carriers with above average accident rates should be first to implement.

Great Coastal Express pointed out that EOBRs are good for monitoring driving time, but not very good for tracking non-driving on-duty time.

Smaller truckload carriers and owner-operators were more uniform in their opposition to the mandatory EOBR provision. Perfetti Trucking, for instance, was totally opposed to EOBRs, believing they would cause older drivers to leave in large numbers. They believe younger drivers in the 30 to 45 age bracket, who may possess some degree of computer literacy, might be more comfortable. The older drivers, however, view EOBRs as an intrusion on their liberties, an insult to their intelligence, and a way of making them look inferior. Perfetti also believed the proposal would put many owner-operators and small trucking companies out of business.

The NASTC found the proposed use of EOBRs to be intrusive and would "treat drivers on a par with convicted felons under house arrest." NASTC noted, however, that if EOBRs are to be required, the agency, in conjunction with CVSA and the industry, should design specifications that are uniform, cost-effective, tamper-proof, and can be incorporated as a mass-manufactured component.

Other small truckload carriers and owner-operators reported the devices would be too expensive; they could not afford them; and they would likely have to go out of business.

The OOIDA believed that dividing the day into a 10-hour rest period and a 14-hour duty period would make compliance and enforcement so simple that EOBRs would be redundant.

The less-than-truckload (LTL) sector was generally opposed to the mandatory use of EOBRs.

The MFCA claimed its carriers now achieve virtually 100 percent compliance with the HOS regulations. The only possible noncompliance is failing to keep up the record of duty status. Therefore, at least as concerns the MFCA, there is no benefit, only cost.

Yellow recommended that the EOBR provision simply be removed from rule until more information is available.

Watkins was concerned about unproductive costs. Watkins believes that EOBRs have no direct safety benefit; that there is no equipment currently available; and that the cost to convert to the requirement would be $2,650 per EOBR. After making a case for exempting LTL operations from the EOBR requirement, Watkins projected its total cost of converting to the proposed monitoring and record-keeping system at $15,053,465.

The OOIDA complained that "[FMCSA leaps] from regulations that may or may not prevent driver fatigue to requiring black boxes to assure compliance with those regulations." OOIDA believes the regulations should be reasonable and should rely on voluntary compliance. OOIDA believes EOBRs would expose carriers to greater liability, as plaintiffs' attorneys would have more ammunition with which to impress juries, regardless of actual fault. OOIDA also objected to EOBRs based on Fourth Amendment privacy protections.

OOIDA participated in a DOT European safety scan in 1999. OOIDA stated the mandatory use of EOBR type devices in Europe had been delayed four times due to industry objections. OOIDA also found that drivers did not embrace the product at the time, they hated it. The system was too restrictive and limited their earning capacity. OOIDA claimed that drivers and employers worked out unofficial arrangements so drivers would not plug in their drivers' cards until they were a couple of hundred miles down the road to enable them to get the overtime the drivers needed to make a living. OOIDA believed VDO North America, a vendor that commented at the hearings and roundtables, "took literary license in the interest of sales." OOIDA acknowledged that the United States system is not foolproof, and drivers would find ways of beating it. OOIDA believes a truly foolproof system would be too expensive.

The IBT commented that it has not opposed EOBRs in the past, provided limitations are placed on the use of the data, because record of duty status falsification has been a big problem. The IBT asserted, though, that the requirement for EOBRs would contribute nothing to safety without strong enforcement. The IBT also doubted whether the information collected by EOBRs would have much value for enforcement since they only directly track driving time.

The ABA cited a General Accounting Office report to Congress finding in relation to the agency's estimate of a 20 percent safety benefit from the use of EOBRs that the FMCSA "did not have an analytic basis to support this estimate." The ABA concludes that mandating EOBRs for long-haul buses would result in a large expense with no safety benefit.

Commercial Vehicle Training Associations (CVTA) is a trade association representing the nation's private training programs for CMV operators. Regarding EOBR training, CVTA commented that if a uniform set of specifications were developed and required, the schools could, and probably would, include a module on EOBR use.

The U.S. Small Business Administration (SBA) noted the cost of the required EOBRs and believed that even four years lead time may not be sufficient to reduce costs significantly. It further believed the cost estimates were understated. The SBA provided no substantiation for its estimate, except its concept of "average," which was to add the lowest estimate it had heard to the highest estimate and divide by two, resulting in a per-unit cost estimate of $17,000 to $19,000. It recommended examination of feasible alternatives to general EOBR use, including one that is performance-based. If the FMCSA imposed the requirement on those with the worst safety records, it would provide an added incentive to operate safely. The SBA strongly urged the FMCSA to consider all information from small businesses and include full discussion of costs and assumptions, as well as feasible alternatives and why they were not chosen.

Law Enforcement Comments

The CVSA opposed the requirement for EOBRs as premature and recommended more study to ensure standardization. It suggested using the DOT's Intelligent Vehicle Initiative (IVI) to conduct operational evaluation and possible pilot tests. In addition to suspecting the quality of the equipment presently available, CVSA has concerns about access, availability and use of the data. CVSA noted that most tachometer-type equipment is used by industry as asset management tools and not necessarily for driver management, and noted, "The EOBR requirements as currently written in the proposal offer no benefit to industry or enforcement in having the ability to proactively manage fatigue." In this context, the CVSA was distinguishing the EOBR from other developing technologies that measure and project driver alertness (e.g., Perclos™ and Actigraph™ devices).

The California Highway Patrol (CHP) was not opposed to the use of automated time record systems for Types 1 and 2. CHP noted such equipment has been in use in California since the mid-1980s. CHP has problems with Types 3, 4 and 5 drivers because they may be caught in positions where they suddenly need an EOBR on a limited basis, such as a required overnight stay. CHP suggested the development of an alternate means of compliance in those situations. CHP also believed that with no records required for Types 3, 4 and 5, roadside enforcement would be impossible. It recommended building into the rules a rebuttable presumption of regularity with toll receipts and other time-dated records regularly issued in the course of business.

Safety Advocacy Groups

Safe Drive America (SDA) described itself as an organization improving highway safety by observing and reporting unsafe practices and promoting improvements in training and working conditions for drivers. SDA supported the NPRM overall as a positive step in the right direction, in particular, the requirement for EOBRs. It recommended a six month phase-in period for all motor carriers. SDA claimed it is not unusual under the current rules for a driver, with three pickups in a given town, to spend all night making those pickups and then record 0.75 hours loading, and 11.25 hours in a sleeper berth. SDA claims the driver then shows on the record of duty status as emerging from the sleeper at 6 a.m. with an eligible 10 hours of driving and 15 hours on duty. SDA claims the driver could still do this under the proposal unless there is a device like the EOBR to keep the driver honest, and even then, enforcement would be required.

The AHAS supported mandating EOBRs for road drivers, claiming that current cost estimates run well below even the lowest estimate used by the agency. It strongly recommended the agency consider requiring EOBRs for Types 3 drivers as well because of added risks associated with split-shift driving and tendency of drivers to falsify records. It would even include Type 4 (local) drivers and was not persuaded by reliance on DOL timecards, as AHAS believes there are no independent means of corroboration. The AHAS found that requiring EOBRs would at least protect drivers from being compelled to exceed hour limitations.

The AHAS disagreed with industry's privacy concerns and favored addition of global positioning system (GPS) technology, which AHAS believes would not be very expensive, certainly not double the quoted $300 base cost. The AHAS noted that in this age of automation, in an industry that operates on razor-thin margins, any carrier that does not take advantage of technological advances would be left behind and would fail to survive.

CRASH supported requiring EOBRs, but suggested that more safety technologies already exist and should be brought into play. PATT also supported mandatory use of EOBRs, which it found long overdue. PATT believed the devices did not cost too much and that any changes in HOS regulation without them would be useless.

The NSC supported technology integration for safety purposes, but found the NPRM lacked data showing that the safety benefit would equal the cost of $1,500 per unit. The NSC recommended piloting required use on the poorest performers, e.g., those with accident rates double the national average.

Vendors' Comments

VDO claimed to be the world's largest independent manufacturer of automotive instrumentation. VDO claimed to have an EOBR meeting the performance standards listed. VDO claimed the device, also known as an electronic tachograph, has become widely used in the European Union with strong support from fleet owners, drivers, unions, and enforcement. VDO claimed its version of the European B1™ Tachograph answers all of the negative comments and concerns of the motor carrier industry.

VDO had talked to several U.S. companies and was told by Qualcomm and Cadec that they believed they could not meet the requirements for EOBRs as proposed.

VDO contended the opportunities its digital tachograph affords users go far beyond merely the time saved on doing paper logs. The device automatically recorded everything fed into it, and the user could decide what to do with the information. VDO has done studies that it believes reflect the beneficial results of what it refers to as a "driver feedback loop." VDO claimed that no matter what device is used, management and society need feedback to correct the poor driver behavior detected, e.g., speeding, tailgating, harsh braking, excessive hours, etc. The benefits did not come from the EOBR, but from the attitude of the carrier that chooses to use it for safety purposes.

Diversified Auto Technology (Diversified) claimed it was on the verge of completing a 13-year project researching and developing on-board recording devices. The company claimed it had been involved primarily in the EU market and that initial cost of Diversified's complete system built to comply with proposal would be estimated to be $2,500.

QUALCOMM Incorporated commented that it offered two primary products to the transportation industry, a geo-stationary satellite-based, mobile communications system and a terrestrial mobile communications system that uses a digital, wireless network. QUALCOMM claimed it was developing an onboard computer solution that would fulfill the requirements of the EOBR requirement. It believed the regulations on electronic recordkeeping should be crafted to promote both safety and productivity in order that carriers can have a return on investment with onboard technology. They projected their device could cost as much as $1,600 per vehicle with an additional charge of $15,000 to $25,000 for host software, plus additional costs for firmware and GPS upgrades, installation, downtime on vehicles and training. These costs would be in addition to the cost of hardware for those fleets not already equipped with mobile communications equipment.

Marconi InfoChain reported that its company and others, including Bristow and E-Truck, were offering an inexpensive alternative to VDO's European solution—a personal digital assistant.

FMCSA Response:

The FMCSA has decided not to adopt regulations on EOBRs at this time. However, there are several technologies that offer significant promise for HOS recordkeeping and enforcement. The agency plans to continue research on EOBRs and other technologies, seeking to stimulate innovation in this promising area. There are several reasons for this decision and the planned research.

First, neither the costs nor the benefits of EOBR systems are adequately known. Cost estimates vary enormously, mainly because there is no significant market for such devices at the moment and thus no hard prices available from competing vendors. There appear to be only a limited number of vendors that could offer a suitable system in the near future, and no guarantee that they could satisfy all of initial demand, should EOBRs be required. Meanwhile, other technologies offer potential for HOS record keeping and compliance and should be evaluated alongside of EOBRs.

The benefits of EOBRs are easier to assume than to estimate. Full voluntary compliance with the HOS rules is unlikely, but the amount of cheating that could be deterred by EOBRs is unknown and the amount that could be detected depends on the tamper-resistance of the design and the ability of roadside enforcement quickly and easily to access the information recorded by the system. FMCSA did not test the (very few) EOBRs currently available, so both issues remain unresolved.

Second, the agency's EOBR proposal was drafted as a performance standard, but enforcement officials generally argued that a design standard was necessary to ensure that they did not have to waste time and effort mastering incompatible read-out procedures created by different EOBR vendors. In retrospect, it might have been better to propose a partial design standard governing driver-identification and information read-out procedures, while setting a performance standard for all other features of the device. FMCSA can neither adopt such far-reaching requirements without prior notice nor ignore the concerns of the enforcement community. The solution, at least for now, is to adopt a rule that does not require EOBRs.

Third, FMCSA proposed that long-haul motor carriers with more than 50 power units be required to adopt EOBRs within 2 years, while those with less than 20 power units would have up to 4 years to comply with the rule. Many commenters argued that this phase-in schedule was irrational because the smallest motor carriers generally have higher accident rates than large ones. Furthermore, the first carriers subject to a regulatory mandate would probably pay more, and perhaps substantially more, for EOBRs than carriers allowed to defer compliance to a later date. Carriers that discussed the phase-in period generally insisted that, if a mandate were adopted, all carriers should be required to begin using EOBRs at the same time. The Small Business Administration (SBA), though critical of the financial burden of on-board recorders for small entities, suggested that the agency consider requiring them only for carriers with the worst safety records. In short, there was no consensus on the phase-in issue.

Fourth, although the agency proposed EOBRs only to capture HOS information, most commenters viewed these devices in a wider context. Many drivers regard electronic monitoring as a direct assault on their dignity and privacy. Motor carriers, on the other hand, are deeply concerned that HOS functions handled by the on-board electronic systems of modern tractors would expose all other information recorded by those systems (e.g., speed, frequency of brake application, etc.) to demands for production in lawsuits resulting from accidents. Many carriers and trucking organizations expressed adamant hostility to any EOBR requirement that did not protect data generated by recording devices from any use except HOS enforcement. Although the commenters may have exaggerated the impact of EOBRs, they did raise issues the agency did not consider in the NPRM and is not prepared to address in this final rule.

For all of these reasons, FMCSA has concluded that it has neither the economic and safety data needed to justify an EOBR requirement at this time, nor the support of the transportation community at large. The agency, however, does plan to continue research on EOBRs and other technologies, including evaluating alternatives for encouraging or providing incentives for their use. Key research factors will include:

(1) Ability to identify the individual driver;
(2) Tamper resistance;
(3) Ability to produce records for audit;
(4) Ability of roadside enforcement to quickly and easily access the HOS information;
(5) Level of protection afforded other personal, operational or proprietary information;
(6) Cost; and
(7) Driver acceptability.

Proposed Compliance and Enforcement

The ATA and a substantial number of other industry commenters expressed concern that enforcement would suffer if the proposed rules were adopted. Motor carriers, associations, unions, and shippers all found the proposed rules too complex, particularly the provision for five types of operations. They stated that roadside inspections would take much longer as enforcement officers sorted out what category each driver fit into so they would know what rules to apply. Longer times per inspection would translate into fewer inspections and a less effective enforcement effort.

Industry comments

The ATA found that the proposed shifting among 5 types of operations would cloud compliance and enforcement. Although the proposal allowed "good faith" compliance with the perceived type of operation, too many variables made the proposal unworkable. Customer demands, weather, loading and unloading delays, and other unforeseen circumstances would impact schedules. Inflexible categories and the subjective interpretation by law enforcement personnel would make confusion unavoidable.

The ATA stated that regulations have to be clear and concise. The ATA stated that it has been a consistent supporter of effective enforcement, but that reliance on EOBRs is not the answer. The ATA comments also recommended removing the link to the DOL requirements and reverting to the current record keeping requirements in 49 CFR Part 395.

The DLTLCA made no mention of record keeping in its petition or in its comments, noting agreement with ATA's view on this matter.

Werner Enterprises recommended an alternative regulatory scheme. It stated that a better objective would be to achieve uniform enforcement of existing rules before attempting any industry-wide change. Consideration should be given to retaining the present HOS rules, but to implement the proposed on-board recorder requirement. The agency could then determine whether that initiative with adequate training would achieve desired level of regulatory compliance and safety improvement.

J.B. Hunt counseled that rules should not be difficult for drivers and enforcement personnel to understand. It believes effective enforcement and meaningful sanctions change behavior. It supported requiring immediate enforcement against violators at the time and place of occurrence to reinforce compliance. Placing the driver out-of-service until he is in compliance is not enough. Uniform fines should also be imposed. J.B. Hunt believes that reliance on carriers to discipline drivers is impractical because of the gap between the time of the violation and the time the carrier learns of it, as well as the mobility of drivers. Finally, J.B. Hunt urged the government to mandate speed control devices on all CMVs limiting truck speeds to a standard national rate (60 to 65 mph) for everyone.

Landstar believes that the proposed provision for different types of operations would make enforcement difficult. It also stated that reliance on DOL records is misplaced: historically, carriers have considered themselves subject to DOT rules and interpretations of them. Without any meaningful explanation, the FMCSA "would throw out decades of industry practice." The complexity of the proposed rules would have an adverse impact on enforcement. Landstar believes that

both compliance reviews and roadside inspections would take longer because the investigator would have to determine what type of operation carriers and drivers are engaged in before they know what rules to apply.

Overnite was convinced that stricter enforcement is the key to improved compliance with HOS regulations and to safety. Overnite strongly endorses the use of EOBRs to bolster enforcement. On the whole, Overnite found the proposal too complex. It offered comments from a driver, Thomas Hawks, a 10-year driver based in Memphis, TN with an exemplary safety record. Mr. Hawks stated the NPRM provisions would confuse drivers and enforcement people, but more importantly, it would prevent drivers from doing their jobs in a professional way. Although he does not load or unload, he believes enforcement action should be taken about time wasted at the docks of shippers and receivers.

The Minnesota Trucking Association found that the five categories of drivers would be very confusing for both companies and law enforcement to follow.

The California Trucking Association agreed that "typing" drivers serves no useful purpose and only confuses industry and enforcement. The CTA would support use of time-recording devices for enforcement, provided certain other conditions apply. Although a vigorous supporter of efforts to make highways safer, CTA would stress better drug/alcohol testing and reporting procedures and more funds for roadside enforcement.

The NTTC deferred to CVSA comments regarding enforcement, but agreed that five types of operations are unnecessarily confusing and would hamper uniformity.

The NITL and the NAM also found the proposed rules overly complex, using the five categories of operations as an example. The complexity would adversely affect enforcement.

Wal-Mart recommended improving enforcement activities while waiting for a new rule.

The IBT said the complexity of the proposed rule, particularly regarding the five categories of operations, would be a challenge for the enforcement community and a problem for the regulated community as well.

Law Enforcement Groups

CVSA and the Connecticut Department of Motor Vehicles argued that the complexity of the NPRM would create problems with training and application at the roadside. They state that FMCSA's estimate of four hours needed to train investigators in the proposed rules is very much understated and is likely to be two to four times as long. One CVSA member estimated that the time required to complete a Level 1 inspection at the roadside would be increased by one-third. Finally, CVSA opposed the requirement for EOBRs as premature, and recommended more study to ensure standardization.

The New York State Police noted that the proposal, as written, was very difficult to understand for enforcement purposes, which is likely to diminish enforcement actions taken on the roadside and therefore would minimize the likelihood of widespread carrier compliance.

The Wisconsin Department of Transportation (WisDOT) believed the five categories would create confusion: the distinction between types 1 and 2 is not precise enough, and roadside enforcement for types 3, 4 and 5 would be virtually impossible. Substantial training for both drivers and enforcement personnel would be necessary. Enforcement personnel would need to know how to deal with both paper and EOBR systems. WisDOT also believes the removal of the Tolerance Guidelines is premature without accurate and extensive crash data.

The Minnesota Department of Transportation and the Minnesota Department of Public Safety filed joint comments. They performed a section-by-section critique, noting that significant modifications and clarifications that would be needed so that enforcement could be effective and consistent.

The Maine Department of Transportation concluded that requiring EOBRs would set back enforcement because of lack of standardization of the devices.

PennDOT recommended regulations that are easily understood by all, enforceable at the roadside, provide for safer operations, and meet the needs of the public, particularly the uninterrupted continuity of utility services.

Safety Advocacy Groups

AHAS contended that difficulty in enforcing the provisions of the NPRM would provide opportunities for drivers to violate the "already inadequate" weekend rest period the proposal would mandate. The AHAS agreed with most commenters that enforcement must be improved, and strongly supported the proposed requirement of EOBRs for Type 1 and 2 operations. It strongly recommended the agency consider requiring them for Types 3 and 4 drivers as well.

CRASH believes that making a distinction among the five different categories of drivers would present enormous problems for police. CRASH also believes relaxing the record carrying requirements by using the DOL records and supporting documents in all categories further complicates enforcement.

PATT, on the other hand, supported the use of DOL time records, but recognized need for vigorous enforcement, and recommended retention of records for 24 months. The NSC, however, believes that the use of the DOL timecard may not be practical for roadside enforcement.

FMCSA Response:

The rule being made final today is significantly simpler than the NPRM and should be much easier to understand and enforce. The agency is modifying the existing rules and exemptions to update them with the appropriate off-duty, on-duty, and driving times, as well as adding a restart provision for truck drivers. The agency is retaining the paper-based record of duty status system, including retention of supporting documents and allowing, but not requiring, continued use of § 395.15-compliant automatic on-board recording devices.

The motor carrier's responsibility for compliance with the HOS regulations remains clear. The motor carrier is responsible for and must police the actions of its employees. This obligation under the FMCSRs was affirmed by the Associate Administrator for what was then the Office of Motor Carriers (of the FHWA) In the Matter of Horizon Transportation, Inc., 55 FR 43292 (October 26, 1990) (Final Order February 12, 1990). A motor carriers' responsibility for the actions of independent contractors and owner operators they use was outlined In re R.W. Bozel Transfers, Inc., 58 FR 16918 (March 31, 1993) (Final Order August 6, 1992); and more recently In the Matter of Commodity Carriers, Inc., (Order Appointing Administrative Law Judge March 25, 1997). Likewise, each motor carrier must have a system in place that allows it to effectively monitor compliance with the FMCSRs, especially those aimed at the issue of this final rule—driver fatigue (See In re National Retail Transportation, Inc., (Final Order: Decision on Review September 12, 1996.)) The United States Court of Appeals for the Sixth Circuit affirmed in A.D. Transport Express Inc. v. Federal Motor Carrier Safety

Administration, 290 F. 3d 761 (6th Cir. 2002) that supporting documents must be maintained in a common sense manner so that FMCSA investigators can "verify dates, times, and locations of drivers recorded on the RODS." More recently, the D.C. Circuit agreed that the term "supporting documents" in the current rule encompasses any document that could be used to support the RODS. That decision also found an FMCSA requirement that supporting documents must be maintained in a fashion that permits the matching of those records to the original drivers' RODS as a reasonable interpretation of 49 CFR 395.8(k)(1). In fact, the Court concluded that all the FMCSA is asking is that carriers refrain from destroying the agency's ability to match records with their associated drivers (Darrell Andrews Trucking v. Federal Motor Carrier Safety Administration, 296 F. 3d 1120 (D.C. Cir. 2002).

Regulatory Impact Analysis

The NSC, ABA, ATA, and DLTLCA petitioned FMCSA to retain an independent consulting firm to study the safety and economic impacts of any final rule. The FMCSA selected a large, well-respected contractor with extensive experience in transportation and the regulatory process.

After reading and analyzing the 53,750 written comments, the FMCSA identified three potentially effective and reasonably feasible regulatory models within the scope of the NPRM for further consideration. The analysis of these alternatives is entitled Regulatory Impact Analysis and Small Business Analysis for HOS Options, December 2002 (RIA) and is in the docket.

The benefits and costs of each alternative must be measured against a baseline, as AHAS pointed out in its comments. The Office of Management and Budget's (OMB) guidance to federal agencies has been that the baseline should be the existing regulation. This baseline can then be compared against reasonable alternatives.

Thus, the first alternative was to take no action, keeping the current rules. The other three alternatives are referred to as the PATT alternative, the ATA alternative, and the FMCSA staff alternative. The RIA, however, compares the costs and benefits of the alternatives relative to two distinct baselines.

Much of the RIA shows the effects of the PATT, ATA, and FMCSA-staff alternatives relative to the current rules under the assumption of 100 percent compliance with the current regulations and each alternative. This approach ensures that the full effects of the alternatives' provisions on costs and benefits are captured. On the other hand, because there have been studies that have shown that drivers do not always comply with the existing rules, OMB requested that FMCSA also assess the differences that would appear if motor carriers and drivers improved current compliance levels and achieved 100 percent compliance. Thus, the alternatives are also shown relative to a baseline in which the current rules are in effect, but there is a certain degree of non-compliance. The University of Michigan Trucking Industry Program (UMTIP) provided the FMCSA with customized statistical outputs for particular subsets of an UMTIP driver survey that the FMCSA analyzed to estimate the percent of non-compliance with the existing regulations. These subsets were designed to match, as closely as possible and where appropriate, the industry segments reflecting the most relevant profiles in the RIA. The FMCSA found that approximately 8 percent of long-haul driver hours exceed the current daily and weekly limits of § 395.3.

The FMCSA did not analyze alternatives for passenger carrier transportation. As stated above, the FMCSA was persuaded by the comments that it does not have enough data to indicate a problem in the motorcoach industry segment. This RIA only analyzes carriers using CMVs to transport (1) goods or (2) crews and equipment to places where they are needed to provide services of one kind or another. This would include service trucks belonging to telephone and electric utility companies; trucks of a variety of types of service contractors—plumbers, electricians, roofers, landscapers, etc.; trucks taking crews and equipment to construction sites, including mobile cranes; dump trucks; trash trucks; beverage, bakery, and snack food distributors' trucks and other like vehicles.

The FMCSA distinguishes two distinct baselines by referring to the current rules with 100 percent compliance as "Current-100 percent," and the current rules with existing estimated compliance levels as the "Status Quo" scenario.

The NPRM analyzed five alternatives, in many commenters' view incompletely, that could have required comprehensive changes to the motor carrier industry, with possibly significant implications for the national economy. The agency considered all of the alternatives suggested by commenters. Some had to be eliminated to provide a manageable number for evaluation under Executive Order 12866. The agency chose three alternatives that were both feasible and could potentially be effective at reducing fatigue-related incidents and increase driver alertness.

The Baseline

The baseline, current rule provides that no driver may drive:

(1) More than 10 hours following 8 consecutive hours off duty;

(2) For any period after having been on duty 15 hours following 8 consecutive hours off duty; and

(3) For any period after –

(a) Having been on duty 60 hours in any 7 consecutive days if the employing motor carrier does not operate commercial motor vehicles every day of the week; or

(b) Having been on duty 70 hours in any period of 8 consecutive days if the employing motor carrier operates commercial motor vehicles every day of the week.

This current rule allows drivers to have work/rest cycles as short as 18-hours, if the drivers maximize driving time and rest the minimum 8 consecutive hours. The 18-hour cycle provides a potential 6-hour backward rotation that inverts drivers' schedules on cross county trips. Such schedules allow a driver to begin driving during the day on the first day, but on subsequent days allow the driver to drive at night, and then during the day, and then at night again. This alternating day-and-night driving has been proven to be detrimental to a driver's sleep thereby increasing the risk that the driver will cause a crash.

PATT Alternative

The first alternative selected by the FMCSA for detailed safety and economic analysis was that suggested by PATT. The PATT alternative provides that no driver may drive:

(1) More than 10 cumulative hours following 12 consecutive hours off duty;

(2) For any period after having been on duty 12 consecutive hours after first beginning on-duty status following 12 consecutive hours off duty;

(3) More than 50 cumulative hours over the last 6 consecutive 24-hour periods plus the current 24-hour period; and

(4) For any period after having been on duty 60 hours over the last 6 consecutive 24-hour periods plus the current 24-hour period.

The PATT alternative allows drivers to have regularly recurring work/rest cycles of 24 hours. The 12-hour on duty, 12-hour off duty cycle would provide drivers with two more off-duty hours than the FMCSA staff alternative for meals, personal errands, and to contact family and friends. Many long-haul drivers commented that they do not need these additional hours during a trip because commuting, doing personal errands and socializing are mainly home-based activities. This type of rule, like the NPRM, would require drivers to waste off-duty time (in their view) in a location where there is little for them to do.

This alternative had the possibility for sharply reducing fatigue-related incidents, but it was also likely to reduce motor carrier productivity and increase transportation costs by increasing the need for more drivers.

ATA Alternative

The second alternative selected by the FMCSA for detailed analysis was the ATA proposal. It was not clear whether this alternative would reduce fatigue-related incidents, as ATA claimed, but it would almost certainly increase productivity and provide cheaper transportation.

The ATA alternative provides that no driver may be on-duty:

(1) More than 14 cumulative hours with up to 16 cumulative hours twice per 7-day period following 10 consecutive hours off duty;

(2) More than 70 hours over the last 7 24-hour periods (ending with the last completed 24-hour period); and

(3) More than 140 hours over the last 14 24-hour periods, with no more than 84 hours allowed in one of the 7 24-hour periods, if followed by a 34-hour off-duty period, and no more than 56 hours in the remaining 7 24-hour periods.

The ATA alternative allows drivers to have regularly recurring work/rest cycles of at least 24 hours. The 14-hour on duty cycle provides drivers with the opportunity to drive the entire 14 hours. It also allows the driver to drive after the 14th hour after the driver's shift began. If the driver takes rest breaks during the 14 hour period, those breaks would extend the work day, as the current rule does. The DLTLCA argued that drivers would not drive the entire 14 hour period "because as a practical matter, no driver is going to be beyond 12 … we are never going to be beyond 12 … because we have 3 to 4 hours loading time. We have pre-trip inspections. We have all these other activities built in." However, it would be possible for a cross-country driver who did no loading enroute and had pre-trip inspections performed by others to drive (potentially) 14 hours straight.

This rule could cause safety problems, including reduced driver alertness and increased fatigue-related incidents, but it could provide productivity increases and could reduce the need for drivers and the "shortage" experienced by the industry today.

FMCSA Staff Alternative

The agency's staff developed the third alternative. This alternative would create incremental changes to the current on-duty, off-duty, and driving requirements; provide an exception for "short-haul" drivers; and adopt a restart provision for weekly on-duty time limits. Exceptions for daily off duty, on duty, and driving time would be modified, along with the restart provision after direct assistance for an emergency relief effort. The alternative would retain all exceptions for weekly restarts provided by the NHS Act as well as those for oilfield operations. It would retain all other rules, including the current methods of notifying drivers to report for work.

The local/short-haul study has persuaded the FMCSA that fatigue may be less problematic for local/short haul drivers, though the agency does not believe all regulation should be removed because these drivers would continue to be at risk of having fatigue-related crashes. The staff alternative could reduce regulatory oversight for local/short haul drivers that could also reduce fatigue-related incidents and fatalities.

The agency considered the experiences of the governments of Australia, Alberta, Ontario, and Quebec with fatigue management alternatives to traditional HOS regulations. The FMCSA is assessing the feasibility of conducting a pilot project that would substitute fatigue management for driver HOS requirements. Although a possibility in the future, it was not included in the staff-developed alternative for this final rule.

The agency is also considering the use of education and training programs for reducing fatigue and increasing driver alertness, as well as medical alternatives and countermeasures, including the feasibility of screening for sleep apnea and other sleep disorders. These possibilities are not included in the staff-developed alternative for this final rule.

Many commenters argued that the agency did not do enough research into the safety consequences of shifting considerable nighttime truck traffic to the daytime. The FMCSA agrees and therefore decided to consider alternativ es that concentrate on approaches that do not promote shifting traffic from the nighttime to daytime. The FMCSA specifically excluded such options from its staff-developed alternative.

The agency staff wanted to formulate an alternative that would be intermediate between the PATT and ATA proposals. The staff believed that the combined effect of the changes it suggested would reduce fatigue-related incidents and increase driver alertness without creating serious safety or economic costs to society. The FMCSA-developed alternative provides that no driver may drive:

(1) More than 11 hours following 10 consecutive hours off duty;

(2) For any period after 14 consecutive hours from the start of a duty tour following 10 consecutive hours off duty;

(3) For any period after 16 consecutive hours from the start of a duty tour following 10 consecutive hours off duty once each 7 or 8 consecutive day period, when the driver returns to the normal work reporting location and is released from work within 16 consecutive hours that duty tour; and

(4) For any period after having been on duty 60 hours in any 7 consecutive days if the employing motor carrier does not operate commercial motor vehicles every day of the week or any period after having been on duty 70 hours in any period of 8 consecutive days if the employing motor carrier operates commercial motor vehicles every day of the week. Any period of 7 or 8 consecutive days may end with the beginning of any off duty period of 34 or more consecutive hours for drivers operating vehicles transporting freight or other property.

There can be little doubt that fatigue directly attributable to the exertion required to operate the modern CMV is less of a factor now than it was when the 10 hour limit was adopted in 1939, and the FMCSA believes allowing one additional hour of driving activity can be safely accommodated within the context of a somewhat reduced overall tour of duty. The FMCSA also has learned a lot about the science of sleep since 1938 and understands that the more relevant issue is how long the driver can be awake and "at work," and still be allowed to drive, before safety is significantly compromised.

After the comments, regulatory analysis, and upon further review of the research studies by Vespa et al. (1998), O'Neill et al. (1998), Folkard (1997), Arnold et al. (1996) Fatigue in the Western Australian Transport Industry, Part Two: The Drivers' Perspective, and Arnold et al. (1996) Part Three: The Company Perspective, discussed in Freund (1999), the FMCSA is convinced that 14 hours after the beginning of a duty tour is long enough, given the significantly increasing degradation of performance which occurs in the later stages of a work shift. The FMCSA believes this limit is materially better from a safety standpoint than the current rule, under which a driver could conceivably still be allowed to return to the wheel several hours after the 15 hour limit has passed (because "off duty" breaks can extend the workday). The limits, however, are not so restrictive as to impose an unreasonable burden on productivity.

Safety Impacts

The FMCSA estimated the benefits of the HOS alternatives using a multi-step process to relate changes in HOS rules to changes in crashes. Conceptually, the FMCSA took the following steps for each alternative:

(1) Constructed a set of sample working and driving schedules of different intensities and degrees of regularity;

(2) Used the results of the modeling performed for the cost analysis to determine the percentages of drivers following each sample schedule and to determine the shifts in these percentages caused by different HOS alternatives;

(3) Translated the amount of on-duty time in each schedule into expected amounts of sleep, using a function based on Effects of Sleep Schedules on Commercial Motor Vehicle Driver Performance, 2000, by Balkin et al. (Walter Reed Army Institute of Research) in the docket;

(4) Used a version of the Walter Reed Sleep Performance Model (WRSPM) to estimate the effects of different sleep and driving schedules on a measure of alertness;

(5) Translated changes in alertness into relative changes in crash risks on the basis of a laboratory study of performance on a driving simulator;

(6) Calibrated the results of the modeling of simulated crash risks to the real world using independent estimates of the total numbers and percentages of crashes attributable to fatigue; and

(7) Translated the estimated changes in fatigue-related crashes into dollar values for avoided crashes using existing estimates of the damages from fatal, injury, and property-damage only crashes.

Safety Benefits

The quantified and monetized benefits of the options derive from their effects on truck crashes. Changes in work and sleep schedules induced by the HOS alternatives can be translated into relative changes in modeled fatigue-related crashes, can be calibrated to correspond to independent estimates of numbers of fatigue-related crashes, and the damages from fatigue-related crashes can be projected for each of the alternatives. First, the FMCSA shows changes for crash damages for long-haul and short-haul operations. Two other sources of benefits (or reductions in benefits) are then described: changes in damages resulting from the employment of different numbers of new drivers, and changes in damages in long-haul operations resulting from shifts between truck and rail.

Changes in Crash Damages Due to Schedule Changes

The FMCSA found the benefits of the alternatives, in terms of the annual values of the crash reductions shown in Table 1 (RIA Exhibit 9-6), by subtracting the damages under each alternative from the damages for the current rules with 100 percent compliance.

Table 1
Value of Crashes Avoided Due to Operational Changes
Relative to Current Rules with Full Compliance
(Millions of dollars per year)
(number in parenthesis equal cost of additional crashes)

	PATT	ATA	FMCSA
Benefits of Avoided Long-haul Crashes	364	(267)	224
Benefits of Avoided Short-haul Crashes	36	(8)	10
Total Benefits	400	(275)	234

Source: RIA Exhibit 9-6

Overall, the FMCSA predicts fatigue-related crashes to be significantly more of a problem in long-haul than short-haul operations. This fact can be attributed in part to the somewhat heavier work schedules of long-haul drivers, but also to the fact that long-haul operations appear more likely to subject drivers to irregular and rotating schedules. The FMCSA projected two of the alternatives, PATT and FMCSA, to reduce accidents substantially relative to the current rules with full compliance. Much of their effectiveness stems from the greater likelihood of moving towards a 24-hour work-rest cycle with decreased schedule rotation; they also allowed for increased sleep during the workweek. Reductions in short-haul crashes were much smaller than the reductions in long-haul crashes, both in relative and absolute terms.

Changes in Fatigue-related Fatalities Due to Schedule Changes

Beyond valuing the benefits of the alternatives, it is useful to present the changes in fatalities that they cause. Estimating fatigue-related fatalities and changes in them under each alternative can be done most easily by referring to the total annual number of fatalities in truck crashes, presented in RIA Exhibit 8-1, splitting that number between long-haul and short-haul operations using the data presented in RIA Exhibit 8-3, and then multiplying by the fatigue-related percentages by alternative shown in RIA Exhibit 8-14. Changes in fatalities can then be calculated by comparing the fatigue-related fatalities for the different alternatives.

RIA Exhibit 8-1 gives the total annual fatalities in truck crashes as 5,346; this is slightly larger than the number of fatal crashes because some crashes cause multiple fatalities. Of these, 61.8 percent or 3,304 are estimated to occur in long-haul operations, with the other 2,042 in short-haul operations. Among the long-haul fatalities, the FMCSA concentrated on the 85.4 percent or 2,821 that it estimated to occur in those portions of the long-haul sector that would be most affected by the rules (i.e., excluding team-driver and LTL operations).

Multiplying the 2,821 long-haul fatalities and 2,042 short-haul fatalities by the fatigue-related percentages shown in RIA Exhibit 8-15 yields fatigue-related fatalities. For the Status Quo, these calculations yielded estimates of 316 for long-haul and 80 for short-haul, for a total of 396. For the alternatives, the estimates are shown below in Table 2 (RIA Exhibit 9-7). The table also shows the changes in fatalities relative to the current rules with full compliance.

Table 2
Annual Fatigue-related Fatalities by Alternative
(numbers in parenthesis are negative)

		Current/ 100%	PATT	ATA	FMCSA
Long-haul	Fatalities in Crashes Attributable to Fatigue	240	176	287	201
	Differences by Alternative Relative to Current/100%	NA	(64)	47	(39)
Short-haul	Fatalities in Crashes Attributable to Fatigue	77	71	78	75
	Differences Relative to Current/100%	NA	(5)	1	(2)
Total	Fatalities in Crashes Attributable to Fatigue	317	247	365	276
	Differences by Alternative Relative to Current/100%	NA	(70)	48	(41)

Source: RIA Exhibits 8-1 and 9-6. Totals do not add due to rounding.

Adjustments to Benefits Due to Secondary Effects

The crash reduction benefits shown in Table 1 (RIA Exhibit 9-6) include only effects of schedule changes on driver fatigue. While these are the primary effects of HOS rules, two secondary effects need to be considered. First, the changes in drivers resulting from the schedule changes and mode shifts, presented in Tables 5 and 9 (RIA Exhibits 9-1 and 9-5), will result in changes in the number of relatively inexperienced drivers in the industry. As described in RIA Section 8.7, these drivers tend to have somewhat higher accident rates than the average driver, even over the fairly long time horizon considered in this analysis. Second, the changes in long-haul Vehicle Miles Traveled (VMT) resulting from the mode shift can be expected to result in proportionate changes in long-haul accidents. Both of these secondary effects are presented in Table 3 (RIA Exhibit 9-8), which shows the effects in terms of their impacts on benefits: increased crashes are shown as negative impacts on benefits in the exhibit, while reduced crashes are shown as positive values. The table also shows the total benefits of each alternative after the adjustments for these secondary effects.

Table 3
Adjustments to Benefits Due to Secondary Effects of Alternatives:
New Drivers and Mode Shift
(Millions of dollars per year)
(values in parentheses are negative)

	PATT	ATA	FMCSA
Change in Benefits due to New Long-haul Drivers	(51)	67	49
Change in Benefits due to New Short-haul Drivers	(70)	4	(6)
Change in Benefits due to New Long-haul and Short-haul Drivers	**(121)**	**71**	**42**
Changes in Benefits due to Increases in Long-haul VMT Due to Mode Shift	61	(69)	(48)
Change in Benefits due to Both Secondary Effects	**(60)**	**2**	**(5)**
Total Unadjusted Benefits (from Table 1 above)	**400**	**(275)**	**234**
Total Adjusted Benefits	**341**	**(272)**	**228**

Source: RIA Exhibit 9-6. Totals may not add due to rounding.

Along with these adjustments to benefits, there would be small adjustments to the changes in fatalities. These adjustments are shown in Table 4 (RIA Exhibit 9-9) below.

Table 4
Adjustments to Changes in Fatalities Due to Secondary Effects of Alternatives, Relative to the Current Rules with Full Compliance
(Values in parentheses are negative)

	PATT	ATA	FMCSA
Increase in Long-haul Fatalities due to New Drivers	9	(12)	(9)
Increase in Short-haul Fatalities due to New Drivers	11	(1)	1
Increase in Total Fatalities due to New Drivers	20	(13)	(8)
Increase in Long-haul Fatalities due to Changes in Long-haul VMT	(11)	12	8
Net Increase in Fatalities due to Secondary Effects	9	0	1
Total Unadjusted Change in Fatalities	(70)	48	(41)
Total Adjusted Change in Fatalities	(61)	48	(40)

Source: RIA Exhibit 9-7. Totals do not add due to rounding.

Costs of the Alternatives

This section presents the results of the cost analysis. First, the FMCSA summarizes the required changes in drivers for long-haul and short-haul operations. Initially, the changes are shown under assumptions of constant demand for trucking services; the adjustment for mode shifts is presented later. The agency later presents the implications to costs of these changes in numbers of drivers.

Given the primary changes in drivers and costs, FMCSA considered two secondary effects: changes in drivers' wages, and mode shifts between long-haul truck and rail. Feedback from these secondary changes would, in theory, cause further ramifications, but these are not analyzed due to their small magnitude.

Table 5 (RIA Exhibit 9-1) presents the percentage changes in drivers required that were calculated in the analysis of changes in operations, and then shows their implications for total numbers of drivers on the basis of the FMCSA's estimates of total long-haul and short-haul drivers subject to this final rule.

Table 5
Changes in Drivers Needed in Response to HOS Limits Relative to Current Rules with Full Compliance
(Values in parentheses are negative)

		PATT	ATA	FMCSA
Percentage Change	Long-haul	4.0%	(5.3)%	(3.9)%
	Short-haul	7.7%	(0.4)%	0.7%
Numbers	Long-haul	60,000	(79,500)	(58,500)
	Short-haul	115,500	(6,000)	10,500
	Total	175,500	(85,500)	(48,000)

Source: RIA Exhibit 9-1

Table 6 (RIA Exhibit 9-2) shows, for the long-haul sector, the cost implications of the changes in drivers shown in Table 5 (RIA Exhibit 9-1). The cost changes are divided into directly driver-related cost changes, and the costs of non-driver related changes that are necessary as a result of the changes in numbers of drivers. For each alternative, there are costs related to new driver wages and benefits, which counteract the changes in wages and benefits for current drivers whose hours of work have changed. The net cost (or cost savings) for the drivers comes about because the per-hour cost of work that has been shifted between existing drivers and newly hired drivers is not the same for the two groups: average employment costs for newly hired drivers tend to be higher than the per-hour cost of extra hours for existing drivers, in part because of fixed payroll costs (e.g., benefits) per driver. Other costs include costs for purchasing, maintaining, insuring, and parking additional tractors and trailers for the new drivers, and hiring a larger staff of non-driving personnel to handle larger numbers of drivers.

Table 6
Direct Cost Changes – Long-haul
(Millions of dollars per year)
(Values in parentheses are negative)

Cost Category	PATT	ATA	FMCSA
Driver Labor Cost	287	(792)	(636)
Avoided Labor Wages	(1,953)	2,258	1,546
Avoided Labor Benefits	(117)	136	92
New Labor Wages	1,799	(2,433)	(1,736)
New Labor Benefits	558	(754)	(538)
Other Costs	478	(563)	(437)
Non-driver Labor	11	(32)	(25)
Trucks	228	(216)	(179)
Parking	54	(72)	(53)
Insurance	40	(52)	(39)
Maintenance	70	(93)	(68)
Recruitment	75	(99)	(73)
Total Costs	764	(1,356)	(1,073)

Table 7 (RIA Exhibit 9-3) shows similar calculations for short-haul operations, and Table 8 (RIA Exhibit 9-4) reports total direct cost changes.

Table 7
Direct Cost Changes – Short-haul
(Millions of dollars per year)
(Values in parentheses are negative)

Cost Category	PATT	ATA	FMCSA
Driver Labor Cost	1,557	(38)	90
Avoided Labor Wages	(3,655)	165	(298)
Avoided Labor Benefits	(219)	10	(17)
New Labor Wages	3,798	(150)	309
New Labor Benefits	1,633	(64)	96
Other Costs	1,038	(49)	78
Non-driver Labor	62	(2)	4
Trucks	517	(23)	33
Parking	105	(5)	10
Insurance	76	(4)	7
Maintenance	134	(7)	12
Recruitment	144	(7)	13
Total Costs	2,595	(87)	168

Source: RIA Exhibit 9-3. Totals do not add due to rounding.

Table 8
Total Direct Cost Changes
(millions of dollars per year)
(values in parentheses are negative)

	PATT	ATA	FMCSA
Long-haul	764	(1,356)	(1,073)
Short-haul	2,595	(87)	168
Total	**3,360**	**(1,442)**	**(905)**

Source: RIA Exhibit 9-4. Totals do not add due to rounding.

The FMCSA analyzed two secondary effects of the need to change the number of drivers in response to the HOS rule alternatives: wage rate changes due to the need to draw new drivers into the industry, and mode shifts in response to changes in the costs of long-haul operations. The changes in drivers shown in Table 5 (RIA Exhibit 9-1) were first translated into changes in market wage rates for drivers using a driver supply elasticity of 5.0. The resulting percentage changes in wages are shown in the second line of Table 9 (RIA Exhibit 9-5). The effects of that increase on the total costs of the long-haul sector are presented in the next line, followed by the total increase in long-haul costs including both the costs for changes in labor and capital, and the costs due to the wage increases. This total cost increase is then compared to the total costs for all long-haul operations to yield a percentage increase in long-haul costs.

Table 9
Long-haul Cost Changes
Including Wage Increases and
Resulting Mode Shifts
(Costs in millions of dollars per year)
(values in parentheses are negative)

	PATT	ATA	FMCSA
Direct HOS-Induced Costs, Long-haul Only	764	(1,356)	(1,073)
Percentage Change in Wages due to Driver Supply Elasticity	1.2%	(0.6)%	(0.3)%
Increase in Long-haul Wage Bill due to Wage Increases	752	(366)	(206)
Total Increase in Long-haul Costs	1,517	(1,722)	(1,279)
Percentage Increase in Long-haul Costs	0.4%	(0.4)%	(0.3)%
Percentage Change in Long-haul VMT due to Mode Shift	(0.32)%	0.37%	0.25%
Change in Long-haul Drivers due to Mode Shift	**(4,875)**	**5,535**	**3,820**

Given this percentage increase in long-haul costs, the assumption that this cost increase is passed on to shippers, a measure of the sensitivity of mode choice to prices, and an estimate of the portion of the long-haul sector that is sensitive to competition from rail, the FMCSA estimated the percentage change in long-haul VMT that would result from changes in the mode split. Assuming a constant relationship between drivers and VMT allowed the agency to estimate the change in long-haul drivers resulting from the projected mode shift. The long-haul wage increases and changes in mode shifts are not included elsewhere in the RIA, because these represent transfers in welfare among groups and not net social costs to society.

Net Benefits

The net social benefits of the alternatives, relative to the current rules with full compliance, are found by subtracting the social costs from the benefits. The results are shown in Table 10 (modified RIA Exhibit 9-10), below.

Table 10
Net Benefits Relative to Current Rules with Full Compliance
(Millions of dollars per year)
(values in parentheses are negative)

	PATT	ATA	FMCSA
Total Benefits	341	(272)	228
Total Cost	3,360	(1,442)	(905)
Net Benefits	**(3,019)**	**1,170**	**1,133**

Source: RIA Exhibits 9-4 and 9-8.

Discussion of Net Benefit Results

The analyses presented above show that both the ATA and FMCSA alternatives have net benefits compared to the current rules with full compliance. Of these two alternatives, only the FMCSA alternative provides positive benefits compared to the current rules with full compliance; the ATA alternative has negative benefits that are outweighed by larger cost savings. The PATT alternative has somewhat higher benefits than the FMCSA alternative, but imposes costs that outweigh the additional benefits.

The relative costs and benefits of the alternatives differ considerably between the long-haul and short-haul segments. Most of the costs of the more protective alternatives, PATT and FMCSA, arise in the short-haul segment, but all of their benefits come from reducing long-haul crashes. Fatigue and fatigue-related crashes are considerably less common in short-haul operations, and the alternatives that limit hours of work appear to be unlikely to make substantial reductions in those crashes. On the other hand, the need to hire many more drivers in response to the restrictions would cause increases in crashes over the ten-year time horizon of this study, and those additional crashes would counterbalance the small predicted reductions in fatigue-related crashes.

In long-haul alternatives, though, the fraction of crashes attributable to fatigue is considerably larger, and the two protective alternatives are predicted to reduce those crashes considerably. Considering the long-haul segment only, the FMCSA alternative is superior on net benefit grounds to the ATA and PATT alternatives as well as the current rules with full compliance.

Table 11
Net Benefits by Length of Haul
Relative to Current Rules with Full Compliance
(Millions of dollars per year)
(values in parentheses are negative)

		PATT	ATA	FMCSA
Long-haul	Total Benefits	374	(269)	225
	Total Cost	764	(1,356)	(1,073)
	Total Net Benefits	**(390)**	**1,087**	**1,298**
Short-haul	Total Benefits	(34)	(4)	4
	Total Cost	2,595	(87)	168
	Total Net Benefits	**(2,629)**	**83**	**(164)**

Source: RIA Exhibits 9-4, 9-4, and 9-8.

Limitations and Sensitivities

One important source of complete certainty is the magnitude of the effects of "time on task" on crash risks. As discussed in RIA Chapter 8.1.5, there is likely to be an increase in risk as continuous hours of driving increase that is independent of the effects of circadian rhythms and sleep deficits. The FMCSA was not able to model this independent effect, however, due to uncertainty about its magnitude for very long hours of driving. If that effect were actually large, the more protective alternatives would show relatively higher benefits. Uncertainty about the time-on-task effect is particularly great for very long hours of driving, in part because very long driving shifts are not permitted. They are therefore both rare and difficult to study. In particular, the 16-hour driving shifts that would be allowed at times under one of the alternatives (a provision that we did not model for this analysis) would be very rare and hard to study under real world conditions.

Another place where complete certainty may not be found is in the 8.15 percent estimate of crashes in the status quo that can be attributed to fatigue. The NPRM regulatory evaluation included an estimate that 15 percent of all crashes were fatigue-relevant. The estimate of 15 percent was supported in the docket and at public hearings by some safety groups, while the ATA and others argued that the correct value was closer to 4 to 5 percent. The NPRM's estimate was comprised of 2 separate components: 5 percent fatigue crashes, and 10 percent fatigue relevant crashes. The 5 percent figure came from FMCSA and NHTSA summary of data from NHTSA databases and other studies. Most of these databases and studies estimated fatigue by counting the number of citations for fatigue from police accident reports. The 10 percent fatigue relevant figure was based on FMCSA's best estimate at the time about the percent of inattention crashes that are at least indirectly related to fatigue. The agency had no studies to suggest that 10 percent was correct, but the data suggested that some percent of inattention crashes were related to driver fatigue.

Because of these criticisms, and because we did not have a specific reason to pick 10 percent, FMCSA revisited the NPRM's estimate in this regulatory evaluation. The agency only used data from police reports and national databases, with no qualitative adjustments. As explained in Chapter 8 of the RIA, we used FARS data from 1997 through 2000, and found that fatigue was cited in an average of 7.25 percent of crashes; 4.33 percent of crashes were cited for inattention. The FMCSA sponsored study by Hanowski, Wierwille, Garness, Dingus, Impact of Local/Short Haul Operations on Driver Fatigue, found that fatigue was a factor in 20.8 percent of inattention crashes. Therefore, FMCSA added 0.9 percent (20.8 times 4.33) to 7.25 to obtain our final estimate of 8.15 percent.

As noted in Discussion of Net Benefit Results above, reviewing the costs and benefits by length of haul reveals that the alternatives have very different cost/benefit profiles for long-haul compared to short-haul operations. The FMCSA alternative, for example, provides net benefits in long-haul operations, but has net costs for short-haul.

Although the estimated costs for imposing new HOS requirements on short haul motor carrier operations exceeds the potential benefits for that specific segment of the industry, the population of drivers employed by these carriers and the VMT by them each year suggests that it is necessary to include short haul operations in this final rule.

The population of short haul drivers is approximately equal to the population of long-haul drivers, about 1.5 million drivers in each of the two categories. However, the vehicle miles traveled (VMT) by short-haul drivers is about one half that of the long-haul drivers, with short-haul operations accounting for 80 billion VMT versus 166 billion VMT for long-haul operations. When consideration is given for VMT, short-haul operations represent a significant risk of accident involvement that is comparable to, if not greater than, the risks presented by long-haul operations. While the economic analyses of the costs and benefits indicates that most of the costs of fatigue-related accidents, and the benefits of this final rule appear to be associated with long-haul operations, the obligation of the FMCSA to improve to the greatest extent practicable the safety of all CMV operations necessitates the inclusion of short-haul operations.

The research studies FMCSA reviewed as part of the rulemaking process indicates that the current HOS rules do not provide drivers with sufficient opportunities for restorative sleep. Under the current rules, a driver operating on a minimally compliant schedule would only be provided eight consecutive hours off duty. This eight-hour period includes the time for the driver to leave his/her work-reporting location, travel to a location for rest, rest, and return to the work-reporting location. Generally, this means that under the current regulations, the driver would have significantly less than eight hours to obtain meaningful rest. The consequences of this type of minimally compliant schedule are typically most severe during emergency driving maneuvers or other high-risk driving tasks such as driving in inclement weather or in heavy traffic, as the driving demands may exceed the capability of the driver suffering from a decreased level of alertness. The risks and potential consequences are present for both long-haul and short-haul operations such that excluding short-haul operations from the final rule would needlessly subject the motoring public to an unnecessarily high level of risk. The risk of an accident that could be attributable in whole or in part to a driver's minimally compliant work-rest cycle, could be significantly reduced if short-haul operations are covered by the final rule.

Since the overall benefits of the rulemaking exceed the overall costs for the freight transporters operating at full compliance, FMCSA believes the inclusion of short-haul operations in the final rule is appropriate despite the seemingly

disproportionate costs of compliance with the rule. There is clearly a need to ensure better opportunities for restorative sleep for all CMV drivers working minimally compliant schedules. Moving forward with a final rule that excludes short-haul drivers would fragment this initiative in such a manner that it may prove extremely difficult to complete a separate rulemaking at a later date that would provide a better potential safety outcome at a lower cost than this final rule. Given the choice between (1) continuing to allow minimally compliant work-rest cycles to be used by approximately half the regulated drivers for the sake of improving estimated benefit-to-cost ratios, or (2) sacrificing a portion of the benefits of the rulemaking to ensure that all drivers transporting freight are required to adhere to work-rest cycles that are more consistent with sleep research, the FMCSA has chosen to ensure the highest practicable level of safety, based on the data currently available.

The observation that the alternatives are less cost-effective in short-haul operations was part of the FMCSA staff's motivation for providing more flexibility in the staff alternative for short-haul drivers, allowing one 16-hour shift per week. The FMCSA assessed the effects of this flexibility by examining the costs and benefits of the staff alternative without allowing any 16-hour shifts.

As stated above under the **FMCSA Response** to the **Daily On-Duty Time** section, the FMCSA found that restricting those drivers who return to the normal work reporting location at the end of every shift has the unintended consequence of requiring a significant increase in new drivers. These new drivers would increase both costs and crashes. The analyses showed that by allowing these short-haul drivers the flexibility to work up to 16 hours one day in a week would reduce the number of additional drivers needed for the staff alternative. This flexibility would result in cost savings of nearly $500 million and safety benefits of nearly $10 million.

With this change to the FMCSA staff alternative, its net benefits compared to current rules with full compliance would drop to about one half of one billion dollars per year. These results are shown in Table 12 (RIA Exhibit 9-12).

Table 12
Net Benefits by Length of Haul
Relative to Current Rules with Full Compliance
(Millions of dollars per year)
(values in parentheses are negative)

		PATT	ATA	FMCSA	FMCSA, Without Short-haul Flexibility
Long-haul	Total Benefits	374	(269)	225	225
	Total Cost	764	(1,356)	(1,073)	(1,073)
	Total Net Benefits	**(390)**	**1,087**	**1,298**	**1,298**
Short-haul	Total Benefits	(34)	(4)	4	(5)
	Total Cost	2,595	(87)	168	641
	Total Net Benefits	**(2,629)**	**83**	**(164)**	**(646)**
Total	**Total Net Benefits**	**(3,019)**	**1,170**	**1,133**	**652**

Source: RIA Exhibit 9-11. Totals may not add due to rounding.

Costs and Benefits Relative to the Status Quo

This section reviews the costs and benefits presented in chapter 9 of the RIA relative to a baseline representing the status quo. Table 13 (RIA Exhibit 9-13) presents the changes in drivers needed relative to the Status Quo scenario; because the difference in drivers needed between the Status Quo and the Current Rules/100 percent is 8.1 percent for long-haul, that amount was added to the estimates that were presented in Table 5 (RIA Exhibit 9-1) for each of the alternatives. Similarly, the amount shown in the other rows of the "Current/100 percent" column in Table 13 (RIA Exhibit 9-13) was added to the estimates presented in Table 5 (RIA Exhibit 9-1) for each of the other alternatives. Because achieving full compliance with the current rule would require more drivers, all of the values in Table 13 are higher than those in Table 5.

Table 13
Changes in Drivers Needed in Response to HOS Limits,
Relative to the Status Quo

		Current/ 100 percent	PATT	ATA	FMCSA
Percentage Change	**Long-haul**	**8.1%**	**12.1%**	**2.8%**	**4.2%**
	Short-haul	**0.7%**	**8.4%**	**0.3%**	**1.4%**
Numbers	Long-haul	121,500	181,500	42,000	63,000
	Short-haul	10,800	126,300	4,800	21,300
	Total	**132,300**	**307,800**	**46,800**	**84,300**

Source: RIA Exhibit 9-1.

The direct costs of the alternatives relative to the Status Quo are shown in Table 14 (RIA Exhibit 9-14). This exhibit shows the costs of the current rules with full compliance in the fourth column from the right. The other columns show selected cost data from Table 6 and 7 with the cost of compliance with the current rules added. Because there would be costs for compliance with the current rules, the costs of each of the alternatives are higher relative to the status quo than relative to the current rule with full compliance.

Table 14
Direct Cost Changes Relative to Status Quo
(Millions of dollars per year)

Cost Category		Current/ 100 percent	PATT	ATA	FMCSA
Long-haul	Driver Labor Cost	1,185	1,472	393	550
	Other Costs	769	1,247	206	332
	Total Costs	**1,954**	**2,719**	**599**	**882**
Short-haul	Driver Labor Cost	143	1,700	105	233
	Other Costs	90	1,128	41	168
	Total Costs	**232**	**2,827**	**146**	**400**
Total Costs, Long-haul and Short-haul		**2,187**	**5,546**	**744**	**1,282**

Source: RIA Exhibits 9-2 and 9-3. Totals may not add due to rounding.

Tables 15 and 16 (RIA Exhibits 9-15 and 9-16) show the benefits and adjusted benefits of compliance with the current rule, as well as the alternatives, relative to the status quo. These tables are based on Tables 1 and 3, with the benefits of compliance with the current rules added to the values in those tables. Because there would be substantial benefits to achieving full compliance with the current rule, the benefits shown in these tables are higher than those shown in Tables 1 and 3.

Table 15
Value of Crashes Avoided Due to Operational Changes
Relative to Status Quo
(Millions of dollars per year)

	Current/100 percent	PATT	ATA	FMCSA
Benefits of Avoided Long-haul Crashes	429	794	162	653
Benefits of Avoided Short-haul Crashes	22	58	14	32
Total Benefits of Operational Changes	451	852	176	685

Source: RIA Exhibit 9-6.

Table 16
Adjustments to Benefits Due to Secondary Effects of Options
Relative to the Status Quo
(Millions of dollars per year)
(Values in parentheses are negative)

	Current/100 percent	PATT	ATA	FMCSA
Change in Benefits due to New Long-haul Drivers	(103)	(154)	(36)	(54)
Change in Benefits due to New Short-haul Drivers	(7)	(77)	(3)	(13)
Change in Benefits due to New Long-haul and Short-haul Drivers	(110)	(230)	(38)	(67)
Change in Benefits due to Change in Long-haul VMT	101	162	32	54
Net Damages (i.e., Reduction in Benefits due to Secondary Effects)	(9)	(68)	(6)	(14)
Total Unadjusted Benefits	452	851	176	685
Total Adjusted Benefits	443	783	170	671

Source: RIA Exhibit 9-8. Totals may not sum due to rounding.

Finally, Table 17 (RIA Exhibit 9-17) shows the net benefits of compliance with the current rule and of the alternatives, relative to the Status Quo. This table presents the total cost and total benefits lines from Tables 14 and 16, and subtracts costs from benefits to yield net benefits.

Table 17
Net Benefits Relative to Status Quo
(Millions of dollars per year)
(Values in parentheses are negative)

	Current/ 100%	PATT	ATA	FMCSA
Total Benefits	443	783	170	671
Total Costs	2,187	5,546	744	1,282
Net Benefits	(1,744)	(4,763)	(574)	(611)

Source: RIA Exhibits 9-12 and 9-14.

Table 18 shows the impact of different assumed baseline percentages of fatigue-related crashes. Specifically, it includes estimates of the benefits and number of fatalities assuming that 5 percent and 15 percent of all current crashes are fatigue-related (compared to a baseline figure of 8.15 percent). These values were chosen because the majority of the figures submitted to the docket or in publics hearings fall within this range. The FMCSA's interpretation of the crash literature indicates that it is very unlikely that the true percent of fatigue-related crashes falls outside this range.

Table 18
Sensitivity Analysis of Number of Fatalities
Using Different Baseline Percent Fatigue-related Crashes
(Values in parentheses are negative)

	Status Quo	100% Compliance	FMCSA
5% Baseline Fatalities	243	196	171
Change from Status Quo	0	(47)	(71)
Change from 100%	NA	0	(24)
8.15% Baseline Fatalities	396	318	278
Change from Status Quo	0	(79)	(120)
Change from 100%	NA	0	(40)
15% Baseline Fatalities	729	584	510
Change from Status Quo	0	(144)	(219)
Change from 100%	NA	0	(75)

Numbers may not add because of rounding.

Based on Table 18, if motor carriers were adhering fully to the current HOS regulations, the FMCSA estimates that between 196 and 585 fatalities would occur each year on the Nation's roads because of drowsy, tired, or fatigued CMV drivers transporting property. The FMCSA estimates that this final rule, when motor carriers adhere to it fully, would save between 24 and 75 lives each year as compared to complying fully with the current rules.

The RIA shows that both the ATA and FMCSA alternatives have net benefits compared to the current rules with full compliance. Only the FMCSA alternative, however, provides positive safety benefits compared to the current rules with full compliance; the ATA alternative has large cost savings that outweigh negative safety benefits. The PATT alternative has somewhat higher safety benefits than the FMCSA alternative, but imposes costs that outweigh the additional benefits.

After careful consideration of the regulatory impacts of the alternatives analyzed, the FMCSA has decided to make final the alternative proposed by the agency staff. All of the changes are within the range of changes proposed in the NPRM. The FMCSA has also chosen to maintain most existing rules for passenger carriers, including carriers of migrant workers.

The FMCSA believes these requirements will increase driver alertness and reduce fatigue problems, if drivers and motor carriers adhere to them. The FMCSA has no control over the manner in which a driver may spend his time off duty, although some of his spare time activities may tire him as much as any work would do. The FMCSA can only emphasize the driver's responsibility to assure himself of adequate rest and sleep, in the time available for this purpose, to insure safety of his driving, and, similarly, the motor carrier's responsibility to see that its drivers report for work in fit condition.

Drivers must manage their off-duty time intelligently if this final rule is to be effective. Some drivers may continue to drive more hours than this final rule allows in order to earn more money. Others may perform non-driving jobs during their off-duty time; commute long distances to and from home; or engage in other pursuits that interfere with their obligation to obtain proper sleep and be prepared to drive safely. Under this final rule, all time spent in any work must be counted as on-duty time, since all work can either induce fatigue or deprive the driver of sleep.

The FMCSA believes this economically significant and major final rule is a reasonable balance of factors because it provides the best combination of increased driver alertness and reduced numbers of fatigue-related incidents, while providing cost effective safety benefits to society.

Changes Compared to May 2, 2000 NPRM

Categories of operations

The NPRM proposed five types of operation. As explained above, the FMCSA has chosen to drop categorization based on comments showing categories created confusion, problems for enforcement, and did not fully meet the objective of accommodating the diversity of the industry.

Passenger carrier operations

The NPRM proposed regulating passenger carriers the same as property carriers. As explained in the discussion of the comments, the FMCSA has decided to retain the existing rules for passenger carriers; those operators will continue to be subject to the rules in effect before this final rule was adopted.

NHS Act exemptions

The NPRM proposed to maintain the HOS exemption for groundwater well drillers without change. It would have narrowed the exemptions for agricultural commodities and farmers by defining certain terms narrowly. Finally, the NPRM would have subjected the construction and utility-service-vehicle exemptions to the proposed off-duty time periods (56 to 32 hours) every seven consecutive days. As explained in the discussion of comments about NHS Act exemptions, the FMCSA has chosen to withdraw these proposals.

The agricultural exemption in effect before this final rule was published will remain in effect. The 24-hour restart provisions applicable to drivers of ground water well drilling rigs and utility service vehicles, and to drivers who transport construction materials and equipment, will also remain in effect. Eligible drivers, however, will now be subject to the new 11-hour driving limit, with no driving after the end of the 14th hour after coming on duty, and will be required to take

10 consecutive hours off duty. Such drivers will also be eligible to take the exemption in § 395.1(o) allowing up to a 16-hour work day, when they meet the conditions in that paragraph.

Sleeper berth provision

The NPRM proposed to eliminate the use of sleeper berths for solo drivers to comply with the HOS rules. It would have allowed team drivers to accumulate 10 hours off duty in two periods in a sleeper berth, one of which would have to be at least 5 hours long. As explained in the discussion of comments on this issue, the FMCSA will maintain the split off-duty period of the current sleeper berth provision. However, the agency is increasing the requirement for cumulative off-duty time to 10 hours for property carriers. Thus, property-carrying drivers who use sleeper berths may take their minimum 10 hours off-duty in two periods, the shorter period must be at least 2 hours. Passenger-carrying drivers who use sleeper berths may take their minimum 8 hours off-duty in two periods, the shorter period must be at least 2 hours.

Carrier notification of drivers during their off-duty hours

The NPRM proposed a kind of restart that would be triggered by employers or their agents violating the proposed prohibitions against interrupting drivers' off-duty periods. The proposal was designed to address complaints the agency has received over the years regarding unreasonable calls from dispatchers and other carrier employees that caused drivers to lose the opportunity to sleep. As proposed, such an interruption would start the full interrupted off-duty period over again from the time of the interruption. As explained above in the discussion of this provision, the FMCSA has decided to withdraw the proposal.

Daily Work-Rest Cycle

The NPRM proposed duty and off-duty periods that would have added up to a regularly recurring 24-hour work day. As explained in the discussion of the relevant comments above, the FMCSA will maintain the current rules for passenger carriers. The rules for property carriers are being modified to reduce the allowable amount of backward rotation of the "daily" schedule.

Daily off-duty time

The NPRM proposed consecutive daily off-duty periods for obtaining sleep from 9 to 12 hours depending on the category of operation. As explained earlier in this document, the FMCSA has chosen to maintain the rule requiring 8 consecutive hours off-duty for passenger carriers and to increase the minimum daily off-duty period to 10 consecutive hours for property carriers.

Daily on-duty time

The NPRM proposed that drivers could accumulate no more than 12 hours of driving and non-driving duty time (15 hours for "Type 5" drivers) in any 24-hour period. The FMCSA has decided to retain the current HOS rule for passenger-carrying drivers. Property-carrying drivers will have an on-duty limit of 14 hours from the start of each tour of duty to do all work, naps, and meal breaks. Property-carrying drivers must not drive after 11 cumulative hours of driving after starting each tour of duty. Property-carrying drivers who have returned to their normal work reporting location each of the last five work days (short-haul), may be on duty, one day out of each 7-day period, for up to 16 consecutive hours after starting the tour of duty.

Distinctions in duty time

The expert panel assembled by the agency to review the options under consideration before publication of the NPRM recommended eliminating the distinction between on-duty time and driving time. The scientific basis for the recommendation was the conclusion that driving is no more tiring than many of the other tasks a truck driver would be called upon to perform.

In addition to striving for a productivity-neutral outcome, the agency's practical basis for proposing the elimination was to reduce the paperwork burden. Under the existing rules, drivers are required to account for both driving time and non-driving duty time. Eliminating the distinction, moreover, would have achieved consistency with the terminology used by the DOL, allowing FMCSA to rely on DOL records in place of driver records of duty status.

The agency has decided to continue the distinction between driving time and on-duty time. Within the limits of a tour of duty usually lasting no more than 14 hours, the FMCSA believes there is little doubt that modern CMVs can be driven safely up to 11 hours, particularly because rest breaks can be expected to naturally occur during the course of that tour. The FMCSA believes that the last hour of a driver's duty tour would be expected to be driving time that comes near the end of a 13- or 14-hour workday and is persuaded that 11 hours is a more reasonable limit. FMCSA will continue to rely on the driver-prepared records of duty status and the documents that support those records.

Weekly or longer cycle

The scientific basis for proposing weekly restrictions is the finding from research studies that sleep debt from multiple periods of insufficient (poor quality or insufficient quantity) sleep is the major cause of cumulative fatigue. The recommended countermeasure is a recovery period during which restorative sleep may be obtained and the sleep debt repaid. The concept of a weekly recovery period was presented in the NPRM in the definition of workweek, i.e., "any fixed and regularly recurring period of seven consecutive workdays," and in the number of hours required to be off-duty before beginning the next workweek.

The FMCSA has concluded that the current 60-hour in 7-day and 70-hour in 8-day limitations continue to be generally acceptable for CMV drivers and will retain those limits.

Weekly recovery periods

The NPRM proposed to require between 32 and 56 consecutive hours off duty every seven consecutive days. As explained previously in this document, the FMCSA has decided to retain the current requirement for passenger-carrying drivers, i.e., these drivers may not drive passenger-carrying vehicles after accumulating 60 hours on-duty in any 7 consecutive days or 70 hours in any 8 consecutive days. If the driver accumulated duty time at the maximum rate he/she would reach the limit in 4¼ days and would have to take three consecutive days off-duty before he/she could drive CMVs again.

The FMCSA is modifying the rule for property-carrying drivers to include a restart provision. A property-carrying driver may not drive CMVs after accumulating 60 hours on-duty in any 7 consecutive days or 70 hours in any 8 consecutive days. If the driver accumulated duty time at the maximum rate, he/she would reach the limit in

approximately 5 days and would have to take at least 34 consecutive hours off-duty before he/she could drive CMVs again. However, the driver could start a new seven- or eight-day period anytime he/she took 34 consecutive hours off duty.

Short rest breaks during a work shift

The NPRM proposed that additional off-duty time for personal reasons such as mid-shift meals, naps, and rest break periods would be allowed, but would result in no extension of the workday. As explained in the discussion of the comments on this provision, the FMCSA has decided to continue allowing off-duty periods for passenger-carrying drivers that may result in extension of the workday. The FMCSA will allow property-carrying drivers to take off-duty mid-shift meal, nap, and other rest break periods, but those breaks will not extend the workday.

Electronic on-board recording devices

The NPRM proposed to require EOBRs for Type 1 and 2, i.e., long-haul and regional operations, that would have replaced driver-prepared paper records of duty status. The FMCSA has decided to maintain the current requirement for driver-prepared paper records of duty status, while allowing automatic recording devices to be used in lieu of the driver-prepared paper records of duty status at the motor carrier's option.

Use of Department of Labor time records

The NPRM proposed to use U.S. Department of Labor (DOL) time records for Types 3, 4, and 5 drivers (i.e., local-split shift, local and primary work not driving) and to remove the distance-based limitation on use of such time records. As explained in the discussion of comments about the compliance and enforcement provisions of the NPRM, the FMCSA has chosen to maintain the current requirement for driver-prepared records of duty status and timecard records for 100 air-mile radius drivers.

Conclusion

This final rule incorporates the FMCSA staff alternative because it provides the best combination of increased driver alertness and reduced numbers of fatigue-related incidents, while providing cost effective safety benefits to society.

Section-by-Section Analysis

The FMCSA's jurisdiction over the HOS regulations for motor carriers and drivers is shown in Table 19. Motor carriers and drivers are also subject to applicable State motor vehicle and highway safety laws and regulations.

Table 19
Applicability of FMCSA Hours of Service (HOS) of Drivers Rulemaking

If you operate a:	In interstate commerce	In intrastate commerce
CMV, i.e., A motor vehicle(s) that has any of the following four characteristics: 1. A gross vehicle weight, gross vehicle weight rating or gross combination weight rating of at least 4,537 kilograms (10,001 pounds) whichever is greater; or 2. Is designed or used to transport more than 8 passengers, including the driver, for compensation; or 3. Is designed or used to transport more than 15 passengers, including the driver, and is not used to transport passengers for compensation; or 4. Is used to transport hazardous materials in quantities requiring the vehicle to be marked or placarded under the Hazardous Materials Regulations (49 CFR part 172, subparts D & F).	You must comply with all FMCSA HOS regulations.[2]	You are not subject to the FMCSA HOS regulations. You may currently be subject to similar State rules and may be subject to the final rule in this document, if your State or local government adopts final rules in order to participate in the Motor Carrier Safety Assistance Program, 49 CFR part 350.

Appendix B to Part 385 Explanation of Safety Rating Process

Section VII of Appendix B to Part 385 lists acute and critical regulations, which play an important role in assigning a safety rating. The descriptions of some of the HOS regulations listed there are being updated to conform to the requirements of this final rule. For example, § 395.3(a)(1), a critical rule, is now summarized as "requiring or permitting a driver to drive more than 10 hours." While § 395.3(a)(1) remains critical, the new summary will say: "requiring or permitting a property-carrying commercial motor vehicle driver to drive more than 11 hours." Updating and adding appropriate citations allows the agency to accurately update the safety rating process on the compliance date of the rule. The citations being updated and added include §§ 395.1(h)(1)(i), 395.1(h)(1)(ii), 395.1(h)(1)(iii), 395.1(h)(1)(iv), 395.1(h)(2)(i), 395.1(h)(2)(ii), 395.1(h)(2)(iii), 395.1(h)(2)(iv), 395.1(o), 395.3(a)(1), 395.3(a)(2) 395.3(a)(2), 395.3(b)(1), 395.3(b)(2), 395.3(c)(1), 395.3(c)(2), 395.5(a)(1), 395.5(a)(1), 395.5(a)(2), 395.5(b)(1), and 395.5(b)(2).

390.23 Relief from regulations.

Paragraphs (b) and (c) of § 390.23 address the restart provisions the agency provided in the emergency relief exemption of July 30, 1992 (57 FR 33638, at 33647). This rule amends the daily and weekly restart provisions for normal duty in interstate commerce and the agency believes it must conform the emergency relief exemption to the standard being adopted today. This amendment requires that drivers who provide direct assistance, as defined by § 390.5, to emergency relief efforts must, before returning to normal duty in interstate commerce, (1) take at least 10 consecutive hours off-duty, if they have driven more than 11 hours or have been on duty more than 14 hours, and (2) take at least 34 consecutive hours off duty, if they have been on duty more than 60 hours in 7 days or 70 hours in 8 days.

395.0 Compliance date for certain requirements for hours of service of drivers.

The agency is adding § 395.0 to specify when motor carriers and drivers must comply with this final rule. The effective date cited in the DATES: heading at the top of this document is the date that this final rule's amendments affect

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[2] Most motor carriers engaged in interstate commerce are exempt from the overtime requirements of the FLSA. The FLSA exemption from the overtime pay requirement applies only to certain employees of interstate motor carrier employers subject to the Motor Carrier Act of 1935 (Pub. L. 74-255, 49 Stat. 543, August 9, 1935), but not to those subject only to the Motor Carrier Safety Act of 1984 (Pub. L. 98-554, October 30, 1984)(98 Stat. 2829). The only substantial group of interstate carrier employers subject to the 1984 Act that are not also subject to the 1935 MCA are private motor carriers of passengers (e.g., churches, musicians, civil and charitable organizations, scouts, companies transporting their own employees, etc.). See 29 CFR 782.2(b)(1).

the current Code of Federal Regulations published by the Government Printing Office. Motor carriers of property and drivers of property-carrying commercial motor vehicles may not begin to comply with this final rule on that date.

The compliance date is the date that motor carriers of property and drivers must begin to comply with this final rule. Motor carriers of property, drivers of property-carrying commercial motor vehicles, Federal, State, and local law enforcement officers, and the FMCSA must do many necessary things before the rules can be enforced. The FMCSA must update motor carrier information, compliance, and enforcement computer systems and manuals. The FMCSA has eight computer software packages where it must find the correct code, write new code, test the new software, and distribute it to its division offices and State and local partners.

The agency must develop training, distribute training materials, and ensure training materials are read, taught, and understood by approximately 8,000 Federal, State, and local law enforcement officers. The agency also plans to provide training and presentations to the public about the new rules.

Motor carriers must develop training or use FMCSA's training materials, distribute training materials, and ensure training materials are read, taught, and understood by the millions of drivers engaged in interstate commerce who transport freight and other types of property. The FMCSA must also ensure the CVSA updates its Out-Of-Service criteria. The FMCSA cannot do its part, and cannot expect motor carriers to do their part, within 60 days after today.

The agency believes a compliance date on a Sunday will be the least burdensome to all carriers and enforcement officials. Most affected carriers subject to this final rule operate on a Sunday to Saturday basis and most affected carriers would suffer less disruption to their operations if the rule took effect at the beginning of a new week. Therefore, the agency is providing a compliance date when all carriers, drivers, and enforcement officials will switch from the current rule to the new rule: Sunday, January 4, 2004.

Finally, this section is only necessary for a few months until all affected motor carriers learn about the new rule and begin complying with it. Therefore, the FMCSA has added language to the DATES: section that will only make this section effective in the Code of Federal Regulations temporarily from [INSERT DATE 60 DAYS AFTER THE DATE OF PUBLICATION IN THE FEDERAL REGISTER] through June 30, 2004. After June 30, 2004, the Government Printing Office will remove this section from the Code of Federal Regulations. Thus, the October, 1, 2004, edition and all subsequent editions of the Code of Federal Regulations will not contain § 395.0.

<u>395.1 Scope of rules in this part.</u>

Section 395.1 is amended by revising paragraphs (b), (e)(3), (e)(4), (g), (h), and (j) to use the new off-duty, on-duty, and driving limits for drivers of property-carrying vehicles, while maintaining the current off-duty, on-duty, and driving limits for drivers of passenger-carrying vehicles.

Paragraph (b) is the adverse driving condition exception. It is being revised to update the daily limits. The adverse driving condition exception applies only to the driving time limitation of 11 hours for property-carrying vehicles or 10 hours for passenger-carrying vehicles. The adverse driving condition exception cannot be used if the driver has accumulated driving time and on-duty (not driving) time, that would put the driver over on duty hour limit or over the 60 hour in 7 day or 70 hours in 8 consecutive day limits. In addition, the adverse driving condition exception cannot be used for loading and unloading delays. An absolute prerequisite for claiming the adverse driving condition exception is that the trip involved is one which could normally and reasonably have been completed without a violation and that the unforeseen event occurred after the driver began the trip.

Drivers who are dispatched after the motor carrier has been notified or <u>should have known</u> of adverse driving conditions are not eligible for the two hours additional driving time.

Paragraphs (e)(3) and (e)(4) are being revised to update the 100-air mile radius exception to the record of duty status requirement. When all five of the conditions in paragraph (e) are met, a carrier may maintain time records for the driver.

Paragraph (g) is being revised to update the off-duty, on-duty, and driving limits of the sleeper berth exception. The FMCSA is improving the regulatory text for the sleeper berth provision to ensure a clear understanding of the rule. The agency has borrowed, but modified, the Government of Canada's 1994 version of the sleeper berth rule (SOR/94-716, s. 5) because its language is clearer than the wording adopted by the ICC in 1938. This change will not affect the way the FMCSA now enforces the sleeper berth exception.

The provisions requiring the summation of the driving and on-duty hours immediately before and after each rest period are necessary to ensure that drivers on irregular schedules do not accumulate significant amounts of fatigue. These provisions, which reflect many decades of enforcement practice, are well understood in the motor carrier industry. Paragraphs (g)(1)(iv), (g)(2)(iv), and (g)(3)(iv), requiring at least 10 consecutive hours off duty or in a sleeper berth, or a combination of at least 10 consecutive hours of sleeper-berth and off-duty time before returning to regular driving, has also been part of the agency's traditional enforcement practice for sleeper berth operations.

For example, a driver can stretch out her driving and on-duty time by using sleeper berth equipment, although she will continue to be limited by the driving time and on-duty time limits. A driver does not have to take her sleeper berth time all at once. She can get her 10 hours off duty by splitting it into two periods. A sleeper berth period of less than 2 hours does not count towards the 10 hour total, but the driver must record a period of less than 2 hours as sleeper berth time. This is an example of how the rule works for drivers of property-carrying vehicles:

1. Drive for part of your 11 hours;
2. Rest in the sleeper berth for at least 2 hours;
3. Drive the remaining part of your 11 hours; and
4. Rest in the sleeper berth again to finish your 10 hours off duty before driving again.

After the second sleeper-berth period, the driver cannot drive 11 hours. The driver must count the time she was driving between the two sleeper berth periods, so she must subtract the previous driving time in between the two sleeper-berth periods from the allowed 11 hours to figure her hours left to drive.

Paragraph (h) and (j) are being revised to update the daily off-duty limit in the exceptions for drivers operating in the State of Alaska and for travel time.

Paragraph (k) is being revised to modify the reference to §395.3 in the exception for drivers transporting agricultural commodities or farm supplies for agricultural purposes in certain States and during certain times of the year.

The wording of the agricultural exemption in the NHS Act is not entirely clear. The FHWA initially interpreted the exemption as limited to § 395.3, a conclusion reflected in the interim final rule published on April 3, 1996 [61 FR 14677]. Subsequent consideration of the legislative history, however, made it clear that Congress intended farmers who qualified to be exempt from all of the HOS regulations. The agency therefore issued an interpretation to its field staff clarifying the reach of the regulation. This revision simply conforms the language of the exemption to the interpretation and the intent of the statute.

Paragraph (o) adds an exception/exemption for certain drivers of property-carrying vehicles. Drivers who meet all three of the conditions in this paragraph (o) are eligible for the exception/exemption. First, a property-carrying driver must have returned to the normal work reporting location and the carrier must have released the driver from duty at that location for the previous five days that the driver has worked. Second, the driver must return to the normal work reporting location and the carrier must release the driver from duty within 16 hours after coming on duty. Finally, the driver must not have used this paragraph's exception/exemption within the previous 7 consecutive days, unless the property-carrying driver has begun a new 7- or 8-consecutive day period. Such a driver will have had 34 or more consecutive hours off-duty thereby restarting the driver's week, which is allowed by new § 395.3(c). Thus, the driver could take the next 16-hour day on the first, second, or third day immediately following the 34 or more consecutive-hour off-duty period.

395.3 Maximum driving time for property-carrying vehicles.

The section heading and text of § 395.3 are being revised to use the new off-duty, on-duty, and driving limits for drivers of property-carrying vehicles.

A driver of a property-carrying vehicle that does not use a sleeper berth must not drive more than 11 cumulative hours following 10 consecutive hours off duty. Such a driver also must not drive after the end of the 14th hour after coming on duty following 10 consecutive hours off duty. This means that once the driver begins a tour of duty, the driver's driving duties must end within 14 consecutive hours. The current 15 hour rule allows drivers to extend the work day by taking off-duty time, including meal stops and other rest breaks, of less than 8 hours duration other than sleeper berth time. This rule requires that taking off-duty time, including meal stops and other rest breaks, of less than 10 hours duration, other than sleeper berth time, will not extend the work day.

The new rule, like the current rule, does not limit the length of time a person can be on duty. The current rule states that a driver cannot drive after being on duty for 15 hours, but the driver could remain on duty indefinitely. This final rule states that a driver cannot drive after being on duty after the end of the 14th hour after coming on duty, but the driver also can remain on duty indefinitely. That time, however, would apply towards the maximum 60 or 70 hours on duty over 7 or 8 consecutive days. Because there will be a requirement for 10 consecutive hours off duty, most drivers will usually go off duty after 14 hours (at worst) under the new rule, not after 15 hours, as often happens under the current rule. But drivers will be allowed to drive up to 11 hours, not the 10 hours of the current rule. Shorter on-duty time, generally, but longer driving time.

This rule retains the current 60 hours on duty in any period of 7 consecutive day and 70 hours on duty in any period of 8 consecutive day rules.

The new rule will allow any period of 7 or 8 consecutive days to end with the beginning of any off duty period of 34 or more consecutive hours.

Thus, the new rules in § 395.3 would allow a driver of a property-carrying vehicle, who is working under the 70-hour-in-8-day rule, to start an 8-day period at 7:00 a.m. on Monday and remain on duty for 14 hours each day (11 hours of which could be driving time). If the driver reached the 70-hour limit at 9:00 p.m. Friday (14 hours/day x 5 days = 70 hours), he would not be able to drive again until 7:00 a.m. on the following Tuesday (8 days after the start of the period) unless he immediately began an off-duty period of 34 consecutive hours, in which case he could begin driving again at 7:00 a.m. Sunday, which would be the start of a new 70-hour-in-8-day period.

Likewise, a short-haul driver of a property-carrying vehicle who is working under the 60-hour-in-7-day rule could start a 7-day period at 6:00 a.m. on Monday and remain on duty for 14 hours per day (11 hours of which could be driving time) Monday through Wednesday, for a total of 42 on-duty hours. If the driver invoked the 16-hour exception in § 395.1(o) on Thursday and returned to his work reporting location at 10:00 p.m., having been on duty for 15 of those 16 hours, he would have 3 on-duty hours left (42 hours + 15 hours = 57 hours). In addition, the driver could not return to duty for 10 consecutive hours, i.e., until 8:00 a.m. Friday morning. The driver could then drive from 8:00 a.m. until 11:00 a.m. on Friday, but could not drive again until 6:00 a.m. the following Monday (7 days after the start of the period) unless he took 34 consecutive hours off duty starting at 11:00 a.m., in which case he could begin a new 60-hour-in-7-day period at 9:00 p.m. Saturday.

395.5 Maximum driving time for passenger-carrying vehicles.

Section 395.5 moves the current rules in § 395.3 to this new section exclusively for drivers of, and carriers using, passenger-carrying vehicles. The current rules in § 395.3 have been moved here verbatim, though the agency has added the qualifying phrase of "a driver of a passenger-carrying vehicle" since only these drivers may use the current rules after this rule's effective date.

A driver of a passenger-carrying vehicle that does not use a sleeper berth must not drive more than 10 hours following 8 hours off duty. Such a driver also must not drive after having been on duty 15 hours following 8 hours off duty. This rule allows drivers to extend the work day by taking off-duty time, including meal stops and other rest breaks, of less than 8 hours duration other than sleeper berth time. This rule retains the current 60 hours in 7 consecutive day and 70 hours in any period of 8 consecutive day rules.

395.13 Drivers declared out of service.

The agency is revising § 395.13 paragraphs (c)(1)(ii) and (d)(2) to use the new off-duty, on-duty, and driving limits for drivers of property-carrying vehicles, while maintaining the current off-duty, on-duty, and driving limits for drivers of passenger-carrying vehicles.

395.15 Automatic on-board recording devices.

The agency is revising § 395.15 paragraph (j)(2)(ii) to also use the new off-duty, on-duty, and driving limits for drivers of property-carrying vehicles, while maintaining the current off-duty, on-duty, and driving limits for drivers of passenger-carrying vehicles.

Rulemaking Analysis and Notices
Executive Order 12866
(Regulatory Planning and Review) and DOT Regulatory Policies and Procedures

The FMCSA has determined that this document contains an economically significant regulatory action under Executive Order 12866 because the FMCSA estimates this action will have an annual effect on the economy of $100 million or more. The agency completed an RIA for this final rule that projects net benefits of $1.1 billion per year to society relative to the current rules with full compliance.

The FMCSA has also determined that this regulatory action is significant under the regulatory policies and procedures of the DOT because of the high level of interest concerning motor carrier safety issues expressed by Congress, motor carriers, their drivers and other employees, State governments, safety advocates, and members of the traveling public.

Finally, the FMCSA has determined that this regulatory action is a major rule under the Congressional Review Act, 5 U.S.C. 801 et seq.

The FMCSA discussed the RIA earlier in this document under the heading Regulatory Impact Analysis.

Regulatory Flexibility Act

The ICCTA requirement for an ANPRM also began a review in compliance with the Regulatory Flexibility Act's requirement under 5 U.S.C. 610 to determine whether the HOS rules should be continued without change, should be amended, or should be rescinded, consistent with the stated objectives of the applicable statutes, to minimize any significant economic impact of the rules upon a substantial number of small entities.

In compliance with the Regulatory Flexibility Act (5 U.S.C. 601-612), the FMCSA has evaluated the effects of this proposed rule on small entities, including small businesses, small non-profit organizations, and small governmental entities with populations under 50,000. Many of these small entities operate as motor carriers of passengers or property in interstate or intrastate commerce.

Of the three alternatives evaluated in the RIA, only the PATT alternative would result in significant, adverse financial impacts (reduced profits) on most carriers. Although both the ATA alternative and the FMCSA alternative affect carrier finances, the resulting impacts generally would be favorable to carriers – that is, most carriers could experience reduced costs under either alternative. Also, all carriers would be impacted more favorably under the ATA alternative than under the FMCSA alternative. These findings are consistent with the cost results presented in Section 9 of the RIA. (See Section 10.2 of the RIA for further discussion of the results by alternative.)

In general, smaller firms are hurt more (under the PATT alternative) or helped less (under either the ATA alternative or the FMCSA alternative) than are larger firms. Nevertheless, the RIA finds that the FMCSA alternative will result in favorable impacts on all carriers (including owner/operators with one tractor) except for firms in the 2-9 tractor size category. Firms in the 2-9 tractor size category are initially expected to lose approximately 8 percent of their net income, compared to the current rules with full compliance. For the median firm in this category, this results from a loss of approximately 0.5 of revenue per carrier, about $2,700. Revenue will fall from about $534,000 to about $531,000.

This reduction is based on industry-wide adjustments, as the wage rate and price of trucking are both expected to drop when compared to the current rules with full compliance. Wages will decline somewhat less than trucking rates. The analysis used several conservative assumptions in estimating the impact on these small carriers. Specifically, the agency assumed that shipping prices drop immediately (lowering revenue to carriers), while shipments grow more slowly (delaying carriers revenue growth). Realistically, both these adjustments are likely to take some time, so that the overall impact on these carriers is likely to be smaller than estimated in our analysis. As soon as carriers increase shipments to take advantage of these extra hours, carrier revenue and net income will return to, or surpass, their current levels. (See RIA Section 10.3 for further information addressing differential impacts on carriers in different size categories.)

The entities affected by the HOS rules include long-haul and short-haul operations. Chapter 10 of the RIA presents detailed analyses of the effects of the rules on long-haul operations, and shows that any adverse effects of the FMCSA option on small entities would be slight and of very limited duration. That chapter did not examine firms engaged in short-haul trucking due to the small magnitude of the rule's effects on short-haul operations. The FMCSA, however, offers a fuller explanation of the reasons for expecting minimal short-haul impacts here.

The FMCSA has divided this analysis into five sections, covering the affected entities; the definitions of "small" used for the analysis; the number of small entities; the thresholds used for the analysis; the costs of the HOS rules, on average and for the most affected firms; and the factual determination of the numbers of small entities significantly affected.

The basic findings of this analysis are that, although large numbers of small entities are affected by the HOS rules regarding short-haul operation, no significant impacts are projected for substantial numbers of these small entities. The FMCSA finds that among trucking companies, the most heavily affected 7.5 percent of small firms bear costs that average less than 0.8 percent of revenues. Among non-trucking companies that have short-haul operations incidental to their main business, the impacts are even smaller: the most affected small firms bear costs no higher than 0.03 percent of revenues.

Affected Entities

Short-haul operations include three basic types of firms:

1. For-hire LTL firms;
2. For-hire TL firms with short average hauls, including local hauls; and
3. Firms in industries other than trucking that operate fleets in short-haul operations for their own purposes (i.e., private carriage).

The LTL firms engage both long-haul and short-haul operations. Their long-haul operations are generally scheduled terminal-to-terminal runs, which are unlikely to be affected by the HOS rules. Their short-haul operations involve runs from shippers to the terminals to collect freight for the long-haul runs, and then from the terminals to the ultimate destinations for the freight. LTL firms tend to be large, with 35 companies accounting for 85 percent of revenue. The rest of the for-hire firms include both firms that provide local pick-up and delivery services for LTL firms and firms that deliver cargos locally or within a short range. Firms involved in private carriage span a very wide range of industries,

including construction; stone, clay, glass, and concrete; groceries and related products; eating and drinking places; and repair services. One common type of operation is the delivery of product along a route to numerous retail outlets.

Definition of Small Firms

To determine how many small affected firms there are, we first identified industries in which at least one percent of all employees are truck drivers, using data from the Current Population Survey for 2000. These industries are shown in Table 20, along with SBA's size thresholds distinguishing small and large firms.

Table 20
Small Business Administration's
Size Standard for Small Businesses
by North American Industry Classification System (NAICS)

Industry	NAICS	Size Standard in Millions of Dollars	Size Standard in Number of Employees
Trucking or For-Hire	484110, 484210, 484220	$21.50	Not Applicable
Private		Not Applicable	
Ag, forest, fisheries	11	$0.75-6.0	500
Groceries and related products	4224	Not Applicable	500
Stone, clay, glass, concrete	327	Not Applicable	500-1000
Mining	21	$6.0	500
Eating and Drinking Places	445	$6.0-23.0	Not Applicable
Wholesale trade (excludes Groceries)	42	Not Applicable	500
Petroleum + coal products	324	Not Applicable	500-1500
Construction	23	$12.0-28.5	Not Applicable
Food and kindred products	311, 312	Not Applicable	500-1000
Lumber, wood products, furniture	321, 337	Not Applicable	500
Transportation, communications, utilities, except trucking	22, 492, 51	$6.0-25.0	500-1,500
Retail trade (excludes Eating and Drinking Places)	44, 451, 452, 453, 454	$6.0-24.5	Not Applicable
Pulp, Paper, Printing	322,323	Not Applicable	500-750

These thresholds tend to be at least at the level of 500 employees, or (where the thresholds are not based on employment) in the range of $6 to $25 million in revenues.

Size Distributions and Numbers of Firms

Table 21 shows the breakdown of firms in these industries in terms of employment. An estimate of the numbers of small firms is shown in the column at the right, using the size distribution and the approximate size cutoffs developed by SBA. In all affected industries, the large majority of firms are small. In all, over two million affected firms f all into the category of small firms.

Table 21
Distribution of Firms by Size, in Year 2000

	Number of Firms			
Industry[1]	**Employment Less than 20**	**Employment 20-500**	**Employment 500+**	**Approximate Number of Small Firms[2]**
Short-haul Trucking or For-Hire	54,281	4,943	227	56,752
Non-Trucking				
Agriculture, forest, fisheries	23,814	1,539	97	25,353
Groceries and related products	27,074	5,515	451	32,589
Stone, clay, glass, concrete	7,784	3,319	352	11,103
Mining	15,880	2,541	335	18,421
Eating and Drinking Places	105,595	11,455	447	111,323
Wholesale trade (excludes Groceries)	301,595	49,258	3,300	350,853
Petroleum + coal products	633	363	140	996
Construction	639,129	61,812	1,006	670,035
Food and kindred products	17,876	5,842	672	23,718
Lumber, wood products, furniture	25,414	8,460	499	33,874
Transportation, communications, utilities, except trucking	79,844	13,302	1,351	93,146
Retail trade (excludes Eating & Drinking)	841,109	83,204	3,385	882,711
Pulp, Paper, Printing	31,899	8,363	574	40,262
Total	2,171,927	259,916	12,836	2,351,136

1) Industries in which drivers represent less than 1% of the labor force are not presented in the table.
2) Assumes small firms are those with 500 or fewer employees for industries with employment-based cutoffs. For other industries, the number of small firms was assumed to be all of those with employment below 20, and half of those with employment between 20 and 500.

Source: Statistics of US Businesses (SUSB), developed by US Census Bureau for SBA, retrieved from SBA Office of Advocacy website http://www.sba.gov/advo/stats/us88_00.pdf.

Thresholds Used for This Analysis

To construct a factual basis for certifying that the rules will not impose significant costs on substantial numbers of small entities, the FMCSA must select thresholds for significant costs and substantial numbers. Selecting these thresholds is complicated, but not rendered impossible, by the lack of an accepted definition for either significant or substantial. The FMCSA started by considering the standard practices in other federal agencies. In general, a test of costs to revenues is more common than a test of costs to profit or other measures. The FMCSA believes that, because profit levels are harder to measure, comparing costs to revenues is more appropriate for this analysis. In the HOS case, the FMCSA considers a profit test to be misleading because typical profit levels are not likely to be reflective of the profitability of the most affected entities. The FMCSA bases this observation on the specific way that the rules affect firms. Because the rules limit maximum working and driving hours, they will affect only operations in which drivers and equipment are intensely utilized – those in which drivers habitually work more than 13 hours per day. These operations will tend to bring in the most revenues per driver, will have the greatest ability to spread out their overhead, capital, and fringe benefit costs, and are likely to have the most stable and predictable operations (given the frequency of high-utilization days). Furthermore, they will tend to have the lowest wage costs per hour (as explained in Chapter 6 of the RIA). Thus, the FMCSA can expect that the most efficient and profitable firms are over-represented among the most heavily affected operations. Firms that are among the most affected by the HOS rules can still operate more efficiently (in terms of the intensity of work by their drivers) than large majorities of their competitors, and can therefore still be competitive. These observations minimized the need to compare large impacts to average profit rates as a way to judge whether the rules would have significant impacts.

In setting the threshold for ascertaining no significant impacts, the FMCSA selected a threshold of costs equal to one percent of revenues because a low threshold would minimize the chance of inappropriately certifying the rules. The FMCSA notes that this threshold is only one third as high as the 3 percent cut-off used by: the Environmental Protection Agency's (EPA) Office of Air and Radiation; EPA's Office of Prevention, Pesticides, and Toxic Substances; EPA's Office of Water; and EPA's Office of Solid Waste and Emergency Response. It is only one fifth of that used by Department of Commerce's National Marine Fisheries Service, at the low end of the range used by DOT's Federal Aviation Administration, and no higher than that used by the Department of Health and Human Service's Food and Drug Administration or Department of Labor's Occupational Safety and Health Administration (OSHA). Though the use of these thresholds by other agencies does not prove that a threshold of costs equal to 1 percent of revenues is not significant, it does show that it is not out of line with other estimates.

For setting the threshold for substantial numbers, we have selected 10 percent of the small entities. This value, which is an order of magnitude smaller than the population as a whole, is considerably below the 20 percent selected by several EPA offices. These thresholds are not intended to set precedents for other regulations, and are not intended to imply that any cost above 1 percent revenues is a significant impact, nor that more than 10 percent is a substantial number.

Estimation of Cost Impacts

The FMCSA's method for estimating the costs imposed by the FMCSA option on short-haul operations is described in detail in Chapters 5 and 6 of the RIA. Here, the agency provides a brief summary of that approach.

The two main parts of the method are, first, the estimation of the change in labor productivity resulting from the HOS rules, and second, the estimation of the costs of that change in productivity. To estimate the change in labor productivity on short-haul operations, the agency first determined that the daily limits on work are more important constraints to short-haul operations than the weekly limits. Second, the agency constructed a distribution of desired hours of daily work for short-haul drivers. This was based on two sets of data: the Hanowski, Wierwille, Garness, and Dingus focus group study of short-haul work patterns for determining the distribution of average hours of work per day; and Balkin et al. (Walter Reed Army Institute of Research) Field Study, which provided an estimate of the day-to-day variability in hours worked. Using the distribution of desired hours of daily work, the agency was able to estimate the number of times when the FMCSA option would limit a driver's work. The agency found that, compared to the current rules, the FMCSA option would reduce the hours that short-haul drivers could work by an average of 0.7 percent.

For some drivers, the rules would limit their working hours more frequently. Six out of 81 short-haul drivers (or about 7.5 percent) reported working an average of 13 hours per day or more, and the estimated impact on their work amounted to a reduction of 4.3 percent.[3] The impact on a firm employing one of the most affected drivers would depend on whether the firm also has other drivers who are less severely affected by the rules. In the extreme, a firm whose drivers were all among the hardest-working 7.5 percent of the industry would have the productivity of its entire staff of drivers reduced by 4.3 percent.

These changes in productivity are translated into changes in costs using the method described in Chapter 6 of the RIA. The results of that analysis, and a brief summary of how it was conducted, is presented below.

Translation of Productivity Changes into Cost Impacts

Under the FMCSA option for the short-haul segment discussed in the RIA, the agency showed an increase in labor demand by about 0.7 percent. That translated to a cost increase of about $168 million for the short-haul/local segment (see Exhibit 9-3 in the RIA). The FMCSA also estimated short-haul total revenue of $198 billion (see Exhibit 3-1 in RIA), implying a 0.08 percent increase in costs in terms of their revenue. Under the worst-case scenario analyzed as part of the impact on small businesses, a 4.3 percent increase in labor demand translates to a corresponding cost increase for short-haul of about $1.32 billion or a 0.67 percent increase as a share of short-haul revenue. Table 22 shows the breakdown of the cost increases for these two scenarios.

The labor cost changes are calculated based on the wage-hours worked relationship estimated for truck drivers from the Current Population Survey data. The details of the estimated wage equation are explained in Chapter 6, Sections 2 and 3 in the RIA. Under the worst-case scenario, a 4.3 percent increase in labor demand means that the short-haul segment would have to hire the equivalent of 64,500 new drivers (though smaller firms are assumed to be able to increase their use of part-time drivers rather than adding a whole employee) at 0.67 percent increase in their costs as a share of revenue. The percentage increase in costs is smaller than the drop in productivity by the existing drivers because the pay for the new drivers (or additional part-time labor) is offset by reductions in the pay for the existing drivers whose hours are limited. Under this scenario, firms incur $2.7 billion in driver labor costs for the new drivers or part-time drivers used to make up for the hours that existing drivers cannot work, but save $1.9 billion in avoided labor costs, giving a net labor cost of $786 million. Corresponding increases in the other cost categories are for new equipment and facilities for the 64,500 new drivers, as well as for hiring other types of workers related to the hiring of new drivers ("non-driver labor" – see explanation in RIA Chapter 6).

[3] These estimates could somewhat overstate the impacts of the HOS rules, because they considered only the effects of the daily rules: very intense daily schedules could cause drivers to be limited by the weekly HOS rules. Working 13 hours per day for 5 days, for example, results in 65 hours of work, which would exceed the 60 hours allowed per 7 days.

Table 22
Direct Cost Changes for the Short-Haul
Under FMCSA option (Million of Dollars)
(values in parentheses are negative)

Scenario Modeled	Proposed Option	Worst-Case
Change in Labor Demand	**0.7 percent**	**4.3 percent**
Change in Number of Drivers	10,500	64,500
Driver Labor Cost	**90**	**786**
Avoided Labor Wages	(298)	(1,774_
Avoided Labor Benefits	(17)	(106)
New Labor Wages	309	2,034
New Labor Benefits	96	631
Other Costs	**78**	**536**
Non-driver Labor	4	31
Trucks	33	249
Parking	10	58
Insurance	7	43
Maintenance	12	75
Recruitment	13	80
Total	**168**	**1,322**
Cost Increase as Share of Short-Haul Revenue *	**0.08 percent**	**0.67 percent**
*Assuming short-haul total revenue of $198 billion ($76 billion + $122 billion). See Exhibit 3-1 in the RIA.		

Sensitivity Analysis for Higher Impacts on Smaller Firms

These estimated changes in costs apply to all firms, not to small entities in particular. Some types of regulation tend to hit small firms harder than large firms, generally because they impose costs that are the same for all firms, or require equipment that exhibits substantial economies of scale. Small firms tend to have higher per-unit costs of compliance with these kinds of regulations because they have fewer units of output over which to spread the regulatory costs. The FMCSA does not consider the HOS rules to fall into that category of regulations, however, because the costs they impose affect individual drivers, not firms. Thus, total cost impacts are likely to be roughly proportional to the number of drivers, and costs for small firms will not tend to be out of proportion with costs for large firms.

In recognition of the SBA's finding that small businesses shoulder costs 60 percent greater that large businesses, the FMCSA conducted a sensitivity analysis that assumed costs were higher for small firms. See page 24 of "The Regulatory Flexibility Act: an Implementation Guide for Federal Agencies," The Office of Advocacy, U.S. Small Business Administration, November 2002, http://www.sba.gov/advo/laws/rfaguide.pdf. To calculate a more conservative cost impact for small firms using SBA's finding, the agency started with the distribution of employment by number of employees across all for-hire trucking firms. This distribution is shown in Table 23.

Table 23
Calculation for Sensitivity Analysis

Trucking or For-Hire	Employment Less than 20	Employment 20-500	Employment 500+	Total
Number of Short-Haul Firms	54,281	4,943	227	59,451
Number of Employees	202,116	225,180	64,493	491,789
Distribution of Employees	41%	46%	13%	100%
Average Impact per Firm				0.67%
Magnitude of Impact by Firm Size	1.6 X	1.3 X	X	
Adjusted Average Impact per Firm	0.775%	0.629%	0.484%	0.670%

Source: Statistics of US Businesses (SUSB), developed by US Census Bureau for SBA and FMCSA calculations.

Under the worst-case scenario, the agency estimates that, on average, a short-haul firm will bear a burden equal to a 0.67 percent increase in its costs as a share of revenue. An SBA study completed in 2001 shows that the economic impact on a firm with less than 20 employees may be up to 60 percent greater per employee than on firms with more than 500 employees, see "The Regulatory Flexibility Act, Implementation Guide for Federal Agencies," November 2002 which cites W. Mark Crain and Thomas D. Hopkins, "The Impact of Regulatory Costs on Small Firms" (Springfield, Va.: National Technical Information Service, 2001). As a result, the FMCSA adjusts the "worst-case" impact estimate to account for the possible disparity of the regulatory impact across firms. The adjustment is based on firms' size and employees' distribution. As no information is available on the magnitude of economic impact on firms with 20 to 500 employees relative to the firms in other size categories, we assume that the impact on firms in this category is equal to the average of impacts on firms in the other two size categories (i.e., that the impact is 30 percent greater for the mid-size firms as for the large firms, and an equivalent amount less than the impacts on the smallest firms). The adjusted average impact per firm was found by setting up the following equation for X, the average impact per firm with more than 500 employees:

41 percent * 1.6 * X + 46 percent * 1.3 * X + 13 percent * X = 0.67 percent

Rearranging terms and solving, the FMCSA finds that X= 0.484 percent. The agency second multiplies X by 1.6 to calculate the average economic impact on firms with less than 20 employees. The agency's results show that economic impact on firms with less than 20 employees is 0.775 percent of revenues, which is below the threshold of significance chosen for this analysis.

Estimation of Costs for Non-Trucking Companies

The cost impact for non-trucking companies is calculated on the basis of the cost increases per existing driver. Assuming there are 1.5 million existing short-haul/local drivers (see Exhibit 6.7 in RIA), a $1.32 billion cost increase means that firms face an increase of $881 per existing driver. Given the distribution of drivers from the Current Population Survey, the agency chose industries that employed a substantial number of drivers, and calculated the increase in their operating costs due to the FMCSA option. Table 24 shows these selected sectors and the estimated number of drivers they employed in 2000.

Among non-trucking industries that use drivers, construction (NAICS 23) bears the largest dollar impact, followed by the eating and drinking places (NAICS 445), under the retail industry. Another industry segment that has a relatively large impact is the groceries and related products sector (NAICS 4224). However, for all these and the others in Table 24, the increase in cost as share of their labor cost is very small (second from last column). In these terms, the highest impact is for the agriculture sector (0.35 percent), probably because labor costs are not so well-defined for mostly family-owned farms. For all the other sectors, impacts are significantly lower than 1 percent of labor costs, since driver labor is a relatively small fraction of their total labor costs.

The cost impacts are even lower when the agency calculates them in terms of their total revenue (last column in Table 24). Similar to the reasoning given above, since labor costs are only a small portion of most industries total costs (or total revenue), the impact of the worst-case scenario is significantly smaller than one percent, with the highest impact shown for the stone, clay, glass, and concrete industry (NAICS 327) at 0.03 percent.

Table 24
Worst-Case Scenario Impact on Different Industry Segments

Private Industry Classification	Short-Haul Drivers in Total Labor (%)	Number of short-haul Drivers in 2000	Cost Increase due to Worst-Case Option (Millions of Dollars)	Cost Increase as Share of Labor Costs (%)	Cost Increase as Share of Revenue (%)
Agriculture, Forest, Fisheries	11.2	18,375	17	0.35	0.01
Groceries & Related Products	7.3	64,233	57	0.18	0.01
Stone, Clay, Glass, Concrete	6.6	34,793	31	0.16	0.03
Mining	4.6	20,965	18	0.08	0.01
Eating & Drinking Places	2.7	82,076	72	0.15	0.02
Petroleum & Coal Products	2.0	2,230	2	0.03	0.001
Construction	1.6	103,487	91	0.04	0.01
Food & Kindred Products	1.6	26,318	23	0.05	0.004
Lumber, Wood Products, Furniture	1.4	17,843	16	0.05	0.01
Transportation, communications, utilities, (excludes For-Hire Trucking)	1.4	68,694	61	0.02	0.01
Pulp, Paper, Printing	1.0	14,274	13	0.02	0.005
Wholesale Trade, (excludes Groceries & Related Prod)	2.5	134,265	118	0.05	0.003
Retail Trade, (excludes Eating & Drinking Places)	1.1	179,317	158	0.05	0.01

Given that the estimated impacts, expressed both in terms of labor cost shares and revenue shares, are well below 1 percent of their revenue, the FMCSA does not expect this rule to have any significant impact on small businesses in the short-haul private sector.

Therefore, the FMCSA, in compliance with the Regulatory Flexibility Act (5 U.S.C. 601–612), has considered the economic impacts of these requirements on small entities and certifies that this final rule does not have a significant economic impact on a substantial number of small entities.

Unfunded Mandates Reform Act of 1995

The Unfunded Mandates Reform Act of 1995 requires each agency to assess the effects of its regulatory actions on State, local, and tribal governments and the private sector. Any agency promulgating a final rule resulting in a Federal mandate requiring expenditure by a State, local or tribal government or by the private sector of $100,000,000 or more in any one year must prepare a written statement incorporating various assessments, estimates, and descriptions that are delineated in the Act. In light of the fact that revisions to the HOS regulations is a major rule that would cost motor carriers more than $100,000,000 in a given year, the FMCSA has prepared the following statement which addresses each of the elements required by the Unfunded Mandates Reform Act of 1995. Most of these required elements have already been covered in the regulatory impact analysis, and the sections of that evaluation containing the preexisting analyses are referenced in this statement. Any elements not included in the final regulatory evaluation have been addressed directly in this statement.

Qualitative and Quantitative Assessment of Costs and Benefits

The Unfunded Mandates Reform Act requires a qualitative and quantitative assessment of the anticipated costs and benefits of this Federal mandate. The options discussed in this final rule would cost between $744 million and $5.5 billion per year, relative to the Status Quo. The FMCSA option would cost an estimated $1.3 billion per year. Relative to the status quo with full compliance, the options will cost between positive $3.4 billion and negative $1.4 billion per year (meaning that they will result in cost savings). The FMCSA option would result in savings of about $900 million per year. Cost estimates are discussed in chapter 9 of the RIA. The cost applies only to motor carriers subject to the FMCSRs. The final rule does not impose any cost on State, local, or tribal governments.

The FMCSA estimates that the annual monetary value of the benefits ranges from $170 million to $780 million, relative to the status quo. The FMCSA staff alternative has a benefit of $670 million. Relative to the status quo with full compliance, the alternatives yield net benefits of $1.2 billion to negative $3 billion. The FMCSA staff alternative yields a net benefit of $1.1 billion relative to the current rules with full compliance. The development of these estimates is discussed in the RIA chapter 9.

Effect on Health, Safety, and the Natural Environment

The Unfunded Mandates Reform Act also states that the FMCSA must discuss the effect of the Federal mandate on health, safety, and the natural environment. The FMCSA prepared an environmental assessment, which has been placed in the docket, which shows that this proposal would not have a significant impact on the natural environment.

The effects of this rule on health and safety will be much more significant: the primary benefit of this proposal would be a reduction in accidents. The FMCSA estimates that this final rule, when motor carriers adhere to it fully, would save between 24 and 75 lives each year as compared to complying fully with the current rules. Injuries will experience a commensurate fall. The RIA explains these estimates in detail in Chapters 8 and 9.

Federal Financial Assistance

Section 202(a)(2)(A) of the Unfunded Mandates Reform Act requires that this qualitative and quantitative assessment of costs and benefits include an analysis of the extent to which costs to State, local, and tribal governments may be paid with Federal financial assistance or otherwise paid for by the Federal Government. Since this rule is applicable only to motor carriers subject to the Federal Motor Carrier Safety Regulations, there is no cost to State, local, and tribal governments. Therefore, no Federal funds for these entities will be necessary for motor carriers to comply with the proposed requirements.

Future Compliance Costs

To the extent feasible, section 202(a)(3) of the Unfunded Mandates Reform Act requires estimates of the future compliance costs of this Federal mandate and any disproportionate budgetary effects upon particular regions, or upon urban, rural, or other types of communities, or upon particular segments of the private sector. There are no disproportionate budgetary effects upon particular regions, or upon urban, rural, or other types of communities. The RIA included an analysis of the impact of the option on various regions, using the REMI Policy Insight™ Model. The model showed no significant disparate impact on any region. These impacts are discussed in chapter 11 of the RIA.

Effect on the National Economy

Section 202(a)(4) of the Unfunded Mandates Reform Act requires estimates of the effect on the national economy, such as the effect on economic growth, full employment, creation of productive jobs, and international competitiveness. The REMI model mentioned above also yielded an estimate of the macroeconomic costs of the options. Relative to the status quo with 100 percent compliance, FMCSA estimates that the impact on gross regional product (GRP) will be minimal, less than 0.1 percent of GRP for all the alternatives. One alternative would reduce GRP by almost $12 billion per year, while all other alternatives would result in a small increase in GRP. Because the overall driving time for most CMV drivers would not change, the FMCSA does not believe the alternatives would have a significant impact on full employment or the creation of productive jobs. The FMCSA also does not believe that the proposal would have any significant impact on international competitiveness.

Prior Consultations with Elected Representatives of Any Affected State, Local, or Tribal Governments

This rule does not require action by State, local, or tribal governments. Therefore, no prior consultations with elected representatives of these governments were initiated.

Decision to Impose an Unfunded Mandate

When Congress created FMCSA, it provided that, "[i]n carrying out its duties the Administration shall consider the assignment and maintenance of safety as the highest priority . . ." [49 U.S.C. 113(b)]. As indicated above, Sec. 408 of the ICCTA directed the agency – then part of the FHWA – to begin rulemaking dealing with a variety of fatigue-related safety issues, including "8 hours of continuous sleep after 10 hours of driving, loading and unloading operations, automated and tamper-proof recording devices, rest and recovery cycles, fatigue and stress in longer combination vehicles, fitness for duty, and other appropriate regulatory and enforcement countermeasures for reducing fatigue-related incidents and increasing driver alertness) . . ." [109 Stat. 958]. The agency's statutory focus on safety and the specific mandate of Sec. 408 both demand that this rulemaking improve CMV safety.

The FMCSA analyzed three alternative regulatory proposals in depth. Compared to the status quo, which includes a degree of non-compliance with the current HOS rules, the option proposed by the ATA, would have marginally reduced fatigue-related fatalities and somewhat increased the cost of regulatory compliance. This results in a negative cost/benefit ratio. The option suggested by PATT would have reduced fatalities far more than the ATA option, but would have generated significant increases in compliance and operational expenses. This results in a cost/benefit ratio far more negative than the ATA option.

The third alternative was proposed by the FMCSA staff. The analysis shows that this option would save many more lives than the ATA alternative, though not quite as many as the PATT option. While it would cost more than the ATA option, it would be much cheaper than the PATT alternative. The net result is a cost/benefit ratio slightly more negative than the ATA option but not nearly as negative as the PATT option.

The FMCSA has adopted the third alternative for this final rule. The rule represents a substantial improvement in addressing driver fatigue over the current regulation. Among other things, it increases required time off duty from 8 to 10 consecutive hours; prohibits driving after the end of the 14th hour after the driver began work; allows an increase in

driving time from 10 to 11 hours; and allows drivers to restart the 60- or 70-hour clock after taking 34 hours off duty. Together, these provisions (and others discussed in detail below) are expected to reduce the effect of cumulative fatigue and prevent many of the accidents and fatalities to which fatigue is a contributing factor. Because the agency's statutory priority is safety, we have adopted a rule that is marginally more expensive than the ATA option but which will reduce fatigue-related accidents and fatalities more substantially than that option. The FMCSA believes that the rule represents the best combination of safety improvements and cost containment that can realistically be achieved, even though it imposes an unfunded mandate.

Paperwork Reduction Act

Under the Paperwork Reduction Act of 1995 (PRA) (44 U.S.C. 3501, et seq.), Federal agencies must obtain approval from the Office of Management and Budget (OMB) for each collection of information (IC) they conduct, sponsor, or require through regulations. The FMCSA has determined that this final rule will affect a currently approved information clearance for OMB Control Number 2126-0001, titled "Record of Duty Status (RODS)." The OMB approved this information collection on March 4, 2002, at a revised total of 161,364,492 burden hours, with an expiration date of March 31, 2005.

Comments received on the information collection proposed in the NPRM are discussed above under the heading "Electronic On-board Recorders (EOBRs)." The NPRM proposed that the title of this information collection be changed to "Hours of Service of Drivers Regulations." The FMCSA believes that this title is more appropriate. The FMCSA did not receive any comments on the change of title for this IC. Therefore, today the supporting statement sent to OMB will bear the revised title change.

The PRA requires agencies to provide a specific, objectively supported estimate of burden that will be imposed by the information collection. See 5 CFR 1320.8. The paperwork burden imposed by the FMCSA's RODS requirement is set forth at 49 CFR 395.8. Paragraph (a)(1) requires drivers to record their duty status. Paragraph (f)(8)(i) requires them to submit the RODS to their motor carrier. Paragraph (k) requires motor carriers to maintain the RODS and all supporting documents for each driver it employs for a period of six months from the date of receipt. The currently-approved information collection for RODS does not include time and cost burdens associated with the collection and retention of supporting documents because these costs were calculated into past paperwork burdens (See 47 FR 53383, 53389 (Nov. 26, 1982) and 63 FR 19464).

As noted in the preamble to this rule, under the above heading "Compliance and Enforcement," the FMCSA collects this information to ensure motor carriers comply with the HOS regulations. The HOS regulations require motor carriers be responsible for and police the actions of its employees, including the actions of independent contractors and owner operators they use. Likewise, each motor carrier must have a system in place that allows it to effectively monitor compliance with the FMCSRs, especially those aimed at the issue of this final rule—HOS to increase driver alertness and reduce fatigue-related incidents.

This final rule does not amend the language of section 395.8. The new HOS rule, like the current rule, does not limit the length of time a person can be on duty. The current rule states that a driver cannot drive after being on duty for 15 hours, but the driver could remain on duty indefinitely. This aspect of the current rule will continue to be applicable to drivers of passenger-carrying CMVs. This final rule, however, will not enable a driver of a property-carrying CMV to drive after being on duty after the end of the 14th hour after coming on duty, but such a driver also can remain on duty indefinitely. Because there will be a requirement for 10 consecutive hours off duty, most property-carrying CMV drivers will usually go off duty after 14 hours (at worst) under this final rule, not after 15 hours, as often happened under the current rule and will continue to happen for drivers of passenger-carrying CMVs. But property-carrying CMV drivers will now be allowed to drive up to 11 hours, not the 10 hours of the current rule that will be applicable to passenger-carrying CMV drivers only. Thus, this final rule will allow property-carrying CMV drivers shorter on-duty time, generally, but longer driving time.

The agency believes that the industry will respond to this HOS requirement for property-carrying CMV drivers by employing, over a period of time, an estimated 48,000 fewer property-carrying CMV drivers, compared to the current rules with full compliance. Thus, this final rule will bring about a small decrease in the estimated 4.2 million drivers required to complete and maintain the RODS. This final rule and a supporting statement reflecting this small decrease in burden hours have been submitted to OMB.

You may submit comments on this adjustment in the information collection burden directly to OMB. The OMB must receive your comments by [Insert date 90 days after date of publication in the FEDERAL REGISTER]. You must mail or hand deliver your comments to: Attention: Desk Officer for the Department of Transportation, Docket Library, Office of Information and Regulatory Affairs, Office of Management and Budget, Room 10102, 725 17th Street, N.W., Washington, D.C. 20503.

National Environmental Policy Act

The FMCSA analyzed the three alternatives in the RIA as required by the National Environmental Policy Act of 1969 (42 U.S.C. 4321 et seq.) and DOT Order 5610.1C. The FMCSA evaluated impacts in terms of the percent change from the status quo (No Action Alternative). "Minor" is defined here as a 0 to 1 percent change from the status quo (0 plus/minus 1 percent), while "Moderate" is defined as a plus/minus 10 percent or greater change. Note that the FMCSA measured these impacts as change from the No Action Alternative (i.e. not from the Full Compliance Alternative). As shown in Table 25 (Environmental Assessment Table 22), none of the Alternatives would have a significant adverse impact on the human environment and all of the Alternatives would have beneficial impacts in some impact areas. None of the Alternatives stands out as environmentally preferable, when compared to the other Alternatives.

Table 25
Comparison of Alternatives

Impact Area	No Action	Full Compliance	PATT Alternative	ATA Alternative	FMCSA Alternative
Air Pollutant Emissions from Affected CMVs	No Change	Minor Benefit (0.5 percent decrease)	Moderate Impact (2 percent increase)	Minor Benefit (1 percent decrease)	Minor Impact (0.6 percent increase)
Air Pollutant Emissions from Transportation	No Change	Minor Benefit (0.02 percent decrease)	Moderate Impact (0.09 percent increase)	Minor Benefit (0.01 percent decrease)	Minor Impact (0.03 percent increase)
Land Use	No Change	Minor Induced Impact (2,350 acres)	Minor Induced Impact (3,408 acres)	No Impact	No Impact
Sensitive Resources	No Change	Minor Potential Impact	Minor Potential Impact	No Impact	No Impact
Noise	No Change	No Change	Minor Impact (unquantifiable)	Minor Benefit (unquantifiable)	Minor Impact (unquantifiable)
Safety	No Change	Major Benefit ($443 million per year)	Major Benefit ($783 million per year)	Major Benefit ($170 million per year)	Major Benefit ($671 million per year)
Socioeconomic Effects	No Change	Minor Impact (unquantifiable)	Minor Impact (unquantifiable)	Minor Impact (unquantifiable)	Minor Impact (unquantifiable)
Transportation Energy Consumption	No Change	Minor Benefit (less than 0.1 percent decrease)	Minor Impact (0.1 percent increase)	Minor Benefit (0.1 percent decrease)	Minor Impact (0.1 percent increase)
Environmental Justice	No Impact	No Impact	No Impact	No Impact	No Impact

Source: Environmental Assessment for Hours of Service (HOS) Rule, Table 22.

This final rule's environmental assessment and finding of no significant impact (FONSI) are in the docket.

Executive Order 13211 (Energy Supply, Distribution, or Use)

We have analyzed this action under Executive Order 13211, Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use. As a part of the environmental assessment, the FMCSA analyzed the three alternatives discussed earlier in this final rule.

The greatest reduction in energy consumption would occur under the ATA alternative and the greatest increase would occur under the PATT alternative. The FMCSA alternative would increase consumption, but to a lesser degree than the PATT alternative. Energy consumption would decrease under the Full Compliance alternative, but to a lesser degree than the ATA alternative. Table 26 shows that the energy consumption effects of the alternatives would range from a reduction of 1 percent to an increase of 2 percent in energy consumption for the affected CMV operations. Effects on energy consumption by all medium and heavy-duty trucks would range from a 0.3 percent reduction to a 1.2 percent increase. Effects of the alternatives on energy consumption from all transportation sources would range from a 0.1 percent reduction to a 0.2 percent increase. From a national energy consumption perspective, the PATT alternative has a net increase in energy consumption of about one tenth of one percent. All other alternatives have essentially a zero effect on national energy consumption.

The FMCSA does not consider these effects to be significant.

Table 26
Net Change in Energy Consumption by Consumer by Alternative

Energy Consumer	No Action Alternative	Full Compliance Baseline	PATT Alternative	ATA Alternative	FMCSA Alternative
Affected CMV Operations	0	(0.05 percent)	2.0 percent	(1.0 percent)	0.6 percent
Medium and Heavy Duty Trucks	0	(0.03 percent)	1.2 percent	(0.6 percent)	0.4 percent
Total Transportation	0	(0.01 percent)	0.2 percent	(0.1 percent)	0.1 percent
Total U.S.	0	(0.00 percent)	0.10 percent	(0.00 percent)	0.00 percent

Source: Environmental Assessment for Hours of Service (HOS) Rule, Table 21.

In accordance with Executive Order 13211, the agency prepared a Statement of Energy Effects for this final rule. A copy of this statement is in Appendix D to the environmental assessment.

Executive Order 12898 (Federal Actions to Address Environmental Justice in Minority Populations and Low income Populations)

The FMCSA evaluated the environmental effects of the Proposed Action and alternatives in accordance with Executive Order 12898 and determined that there were no environmental justice issues associated with revising the hours of service regulations. Environmental justice issues would be raised if there were "disproportionate" and "high and adverse impact" on minority or low-income populations. The FMCSA determined through the analyses documented in the

Environmental Assessment in the docket prepared for this final rule that there were no high and adverse impacts associated with any of the alternatives. In addition, FMCSA analyzed the demographic makeup of the trucking industry potentially affected by the alternatives and determined that there was no disproportionate impact on minority or low-income populations. This is based on the finding that low-income and minority populations are generally underrepresented in the trucking occupation. In addition, the most impacted trucking sectors do not have disproportionate representation of minority and low-income drivers relative to the trucking occupation as a whole. Appendix E of the Environmental Assessment provides a detailed analysis that was used to reach this conclusion.

Executive Order 13045 (Protection of Children)

Executive Order 13045, "Protection of Children from Environmental Health Risks and Safety Risks" (April 23, 1997, 62 FR 19885), requires that agencies issuing "economically significant" rules that also concern an environmental health or safety risk that an agency has reason to state may disproportionately affect children must include an evaluation of the environmental health and safety effects of the regulation on children. Section 5 of Executive Order 13045 directs an agency to submit for a "covered regulatory action" an evaluation of its environmental health or safety effects on children.

The FMCSA evaluated the projected effects of the proposed action and alternatives and determined that they would not create disproportionate environmental health risks or safety risks to children. The only adverse environmental effect with potential human health consequences is the projected increase in emissions of air pollutants. The FMCSA has projected that the PATT alternative and the FMCSA alternative would result in a minor increase in emissions on a national scale. The FMCSA projects no adverse human health consequences to either children or adults because the magnitude of emission increases is small. The proposed action and alternatives, however, would reduce the safety risk posed by tired, drowsy, or fatigued drivers of CMVs. These safety risk improvements would accrue to children and adults equally.

Executive Order 12988 (Civil Justice Reform)

This action meets applicable standards in sections 3(a) and 3(b)(2) of Executive Order 12988, Civil Justice Reform, to minimize litigation, eliminate ambiguity, and reduce burden.

Executive Order 12630 (Taking of Private Property)

This rule will not effect a taking of private property or otherwise have taking implications under E. O. 12630, Governmental Actions and Interference with Constitutionally Protected Property Rights.

Executive Order 13132 (Federalism)

This action has been analyzed in accordance with the principles and criteria contained in Executive Order 13132. The FMCSA has determined this rule does not have a substantial direct effect on States, nor would it limit the policymaking discretion of the States. Nothing in this document preempts any State law or regulation.

A State that fails to adopt the new amendments in this final rule within three years of the effective date of [INSERT DATE 60 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER], will be deemed to have incompatible regulations and will not be eligible for Basic Program nor Incentive Funds in accordance with 49 CFR 350.335(b).

Executive Order 12372 (Intergovernmental Review)

Catalog of Federal Domestic Assistance Program Number or 20.217, Motor Carrier Safety. The regulations implementing Executive Order 12372 regarding intergovernmental consultation on Federal programs and activities do not apply to this program.

List of Subjects

49 CFR Part 385

Administrative practice and procedure, Highway safety, Motor carriers, Motor vehicle safety, Reporting and recordkeeping requirements

49 CFR Part 390

Highway safety, Intermodal transportation, Motor carriers, Motor vehicle safety, Reporting and recordkeeping requirements.

49 CFR Part 395

Highway safety, Motor carriers, Reporting and recordkeeping requirements.

In consideration of the foregoing, the FMCSA is amending Title 49, CFR, chapter III, parts 385, 390, and 395 as set forth below:

PART 385 - SAFETY FITNESS PROCEDURES [AMENDED]

1. The authority citation for part 385 continues to read as follows.

Authority: 49 U.S.C. 113, 504, 521(b), 5113, 31136, 31144, 31148, and 31502; and 49 CFR 1.73.

2. Amend Appendix B to Part 385 as follows:

a. Revise section II.(c) as follows;

b. Amend section VII as follows:

(i) Revise the citations and text for §§ 395.1(h)(1)(i) through (h)(1)(iv) and 395.3(a)(1) through 395.3(b)(2) as follows; and

(ii) Add the citations and text for §§ 395.1(h)(2)(i) through (h)(2)(iv), 395.1(o), and 395.3(c)(1) through 395.5(b)(2) in numerical order as follows:

Appendix B to Part 385 Explanation of Safety Rating Process

* * * * *

II. Converting CR Information Into a Safety Rating

* * * * *

(c) Critical regulations are those identified as such where noncompliance relates to management and/or operational controls. These are indicative of breakdowns in a carrier's management controls. An example of a critical regulation is § 395.3(a)(1), requiring or permitting a property-carrying commercial motor vehicle driver to drive more than 11 hours.

* * * * *

VII. List of Acute and Critical Regulations.

* * *

§ 395.1(h)(1)(i) Requiring or permitting a property-carrying commercial motor vehicle driver to drive more than 15 hours (Driving in Alaska) (critical).

§ 395.1(h)(1)(ii) Requiring or permitting a property-carrying commercial motor vehicle driver to drive after having been on duty 20 hours (Driving in Alaska) (critical).

§ 395.1(h)(1)(iii) Requiring or permitting a property-carrying commercial motor vehicle driver to drive after having been on duty more than 70 hours in 7 consecutive days (Driving in Alaska) (critical).

§ 395.1(h)(1)(iv) Requiring or permitting a property-carrying commercial motor vehicle driver to drive after having been on duty more than 80 hours in 8 consecutive days (Driving in Alaska) (critical).

§ 395.1(h)(2)(i) Requiring or permitting a passenger-carrying commercial motor vehicle driver to drive more than 15 hours (Driving in Alaska) (critical).

§ 395.1(h)(2)(ii) Requiring or permitting a passenger-carrying commercial motor vehicle driver to drive after having been on duty 20 hours (Driving in Alaska) (critical).

§ 395.1(h)(2)(iii) Requiring or permitting a passenger-carrying commercial motor vehicle driver to drive after having been on duty more than 70 hours in 7 consecutive days (Driving in Alaska) (critical).

§ 395.1(h)(2)(iv) Requiring or permitting a passenger-carrying commercial motor vehicle driver to drive after having been on duty more than 80 hours in 8 consecutive days (Driving in Alaska) (critical).

§ 395.1(o) Requiring or permitting a short-haul property-carrying commercial motor vehicle driver to drive after having been on duty 16 consecutive hours (critical).

§ 395.3(a)(1) Requiring or permitting a property-carrying commercial motor vehicle driver to drive more than 11 hours (critical).

§ 395.3(a)(2) Requiring or permitting a property-carrying commercial motor vehicle driver to drive after the end of the 14th hour after coming on duty. (critical)

§ 395.3(b)(1) Requiring or permitting a property-carrying commercial motor vehicle driver to drive after having been on duty more than 60 hours in 7 consecutive days (critical).

§ 395.3(b)(2) Requiring or permitting a property-carrying commercial motor vehicle driver to drive after having been on duty more than 70 hours in 8 consecutive days (critical).

§ 395.3(c)(1) Requiring or permitting a property-carrying commercial motor vehicle driver to restart a period of 7 consecutive days without taking an off-duty period of 34 or more consecutive hours. (critical)

§ 395.3(c)(2) Requiring or permitting a property-carrying commercial motor vehicle driver to restart a period of 8 consecutive days without taking an off-duty period of 34 or more consecutive hours. (critical)

§ 395.5(a)(1) Requiring or permitting a passenger-carrying commercial motor vehicle driver to drive more than 10 hours (critical).

§ 395.5(a)(2) Requiring or permitting a passenger-carrying commercial motor vehicle driver to drive after having been on duty 15 hours (critical).

§ 395.5(b)(1) Requiring or permitting a passenger-carrying commercial motor vehicle driver to drive after having been on duty more than 60 hours in 7 consecutive days (critical).

§ 395.5(b)(2) Requiring or permitting a passenger-carrying commercial motor vehicle driver to drive after having been on duty more than 70 hours in 8 consecutive days (critical).

* * * * *

PART 390 – FEDERAL MOTOR CARRIER SAFETY REGULATIONS; GENERAL

3. The authority citation for Part 390 is revised to read as follows:

Authority: 49 U.S.C. 13301, 13902, 31132, 31133, 31136, 31502, and 31504; sec. 204, Pub. L. 104-88, 109 Stat. 803, 941 (49 U.S.C. 701 note); sec. 217, Pub. L. 106-159, 113 Stat. 1748, 1767; and 49 CFR 1.73.

3a. Revise paragraphs (b) and (c) of § 390.23 to read as follows:

§ 390.23 Relief from regulations.

* * * * *

(b) Upon termination of direct assistance to the regional or local emergency relief effort, the motor carrier or driver is subject to the requirements of parts 390 through 399 of this chapter, with the following exception: A driver may return empty to the motor carrier's terminal or the driver's normal work reporting location without complying with parts 390 through 399 of this chapter. However, a driver who informs the motor carrier that he or she needs immediate rest must be permitted at least 10 consecutive hours off duty before the driver is required to return to such terminal or location. Having returned to the terminal or other location, the driver must be relieved of all duty and responsibilities. Direct assistance terminates when a driver or commercial motor vehicle is used in interstate commerce to transport cargo not destined for the emergency relief effort, or when the motor carrier dispatches such driver or commercial motor vehicle to another location to begin operations in commerce.

(c) When the driver has been relieved of all duty and responsibilities upon termination of direct assistance to a regional or local emergency relief effort, no motor carrier shall permit or require any driver used by it to drive nor shall any such driver drive in commerce until:

(1) The driver has met the requirements of §§ 395.3(a) and 395.5(a) of this chapter; and

(2) The driver has had at least 34 consecutive hours off-duty when:

(i) The driver has been on duty for more than 60 hours in any 7 consecutive days at the time the driver is relieved of all duty if the employing motor carrier does not operate every day in the week, or

(ii) The driver has been on duty for more than 70 hours in any 8 consecutive days at the time the driver is relieved of all duty if the employing motor carrier operates every day in the week.

PART 395 - HOURS OF SERVICE OF DRIVERS

4. The authority citation for Part 395 is revised to read as follows:

Authority: 49 U.S.C. 504, 14122, 31133, 31136, and 31502; sec. 113, Pub. L. 103-311, 108 Stat. 1673, 1676; and 49 CFR 1.73.

5. Add § 395.0 to read as follows:

§ 395.0 Compliance date for certain requirements for hours of service of drivers.

(a) Motor carriers and drivers must comply with the following requirements of this chapter through January 3, 2004, that were in effect on or before [INSERT DATE 60 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER] and are contained in 49 CFR Chapter III revised as of October 1, 2002:

(1) §§ 395.1(b), (e)(3), (e)(4), (g), (h), and (j) of this part;

(2) § 395.3 of this part;

(3) § 390.23(b) and (c) of this subchapter; and

(4) The citations and text for §§ 395.1(h)(1)(i) through 395.3(b)(2) in section VII. List of Acute and Critical Regulations in Appendix B to Part 385 of this subchapter.

(b) Motor carriers and drivers must comply beginning on January 4, 2004 with the amendments made to the following sections that took effect on [INSERT DATE 60 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER] and are contained in 49 CFR Chapter III revised as of October 1, 2003:

(1) §§ 395.1(b), (e)(3), (e)(4), (g), (h), (j), and (o) of this part;

(2) § 395.3 of this part;

(3) § 395.5 of this part;

(4) §§ 390.23(b) and (c) of this subchapter; and

(5) The citations and text for §§ 395.1(h)(1)(i) through 395.5(b)(2) in section VII. List of Acute and Critical Regulations in Appendix B to Part 385 of this subchapter.

* * * * *

6. Section 395.1 is amended by revising paragraphs (b)(1), (e)(3), (e)(4), (g), (h), (j), (k), and adding paragraph (o) to read as follows:

§ 395.1 Scope of rules in this part.

* * * * *

(b) Adverse driving conditions. (1) Except as provided in paragraph (h)(2) of this section, a driver who encounters adverse driving conditions, as defined in § 395.2, and cannot, because of those conditions, safely complete the run within the maximum driving time permitted by §§ 395.3(a) or 395.5(a) may drive and be permitted or required to drive a commercial motor vehicle for not more than 2 additional hours in order to complete that run or to reach a place offering safety for the occupants of the commercial motor vehicle and security for the commercial motor vehicle and its cargo. However, that driver may not drive or be permitted to drive --

(i) For more than 13 hours in the aggregate following 10 consecutive hours off duty for drivers of property-carrying commercial motor vehicles;

(ii) After he/she has been on duty after the end of the 14th hour after coming on duty following 10 consecutive hours off duty for drivers of property-carrying commercial motor vehicles;

(iii) For more than 12 hours in the aggregate following 8 consecutive hours off duty for drivers of passenger-carrying commercial motor vehicles; or

(iv) After he/she has been on duty 15 hours following 8 consecutive hours off duty for drivers of passenger-carrying commercial motor vehicles.

* * * * *

(e) * * *

(3)(i) A property-carrying commercial motor vehicle driver has at least 10 consecutive hours off duty separating each 12 hours on duty;

(ii) A passenger-carrying commercial motor vehicle driver has at least 8 consecutive hours off duty separating each 12 hours on duty;

(4)(i) A property-carrying commercial motor vehicle driver does not exceed 11 hours maximum driving time following 10 consecutive hours off duty; or

(ii) A passenger-carrying commercial motor vehicle driver does not exceed 10 hours maximum driving time following 8 consecutive hours off duty; and

* * * * *

(g) Sleeper berths. (1) General property-carrying commercial motor vehicle. A driver who is driving a property-carrying commercial motor vehicle that is equipped with a sleeper berth, as defined in §§ 395.2 and 393.76 of this subchapter, may accumulate the equivalent of 10 consecutive hours of off-duty time by taking two periods of rest in the sleeper berth, providing:

(i) Neither rest period is shorter than two hours;

(ii) The driving time in the period immediately before and after each rest period, when added together, does not exceed 11 hours;

(iii) The on-duty time in the period immediately before and after each rest period, when added together, does not include any driving time after the 14th hour; and

(iv) The driver may not return to driving subject to the normal limits under § 395.3 without taking at least 10 consecutive hours off duty, at least 10 consecutive hours in the sleeper berth, or a combination of at least 10 consecutive hours off duty and sleeper berth time.

(2) Specially trained driver of a specially constructed oil well servicing commercial motor vehicle at a natural gas or oil well location. A specially trained driver of a specially constructed oil well servicing commercial motor vehicle who is off duty at a natural gas or oil well location in a commercial motor vehicle that is equipped with a sleeper berth, as defined in §§ 395.2 and 393.76 of this subchapter, or other sleeping accommodations, may accumulate the

equivalent of 10 consecutive hours of off-duty time by taking two periods of rest in the sleeper berth or other sleeping accommodations, providing:

(i) Neither rest period is shorter than two hours;

(ii) The driving time in the period immediately before and after each rest period, when added together, does not exceed 11 hours;

(iii) The on-duty time in the period immediately before and after each rest period, when added together, does not include any driving time after the 14th hour; and

(iv) The driver may not return to driving subject to the normal limits under § 395.3 without taking at least 10 consecutive hours off duty, at least 10 consecutive hours in the sleeper berth, or a combination of at least 10 consecutive hours off duty and sleeper berth time.

(3) Passenger-carrying commercial motor vehicles. A driver who is driving a passenger-carrying commercial motor vehicle that is equipped with a sleeper berth, as defined in §§ 395.2 and 393.76 of this subchapter, may accumulate the equivalent of 8 consecutive hours of off-duty time by taking two periods of rest in the sleeper berth, providing:

(i) Neither rest period is shorter than two hours;

(ii) The driving time in the period immediately before and after each rest period, when added together, does not exceed 10 hours;

(iii) The on-duty time in the period immediately before and after each rest period, when added together, does not include any driving time after the 15th hour; and

(iv) The driver may not return to driving subject to the normal limits under § 395.5 without taking at least 8 consecutive hours off duty, at least 8 consecutive hours in the sleeper berth, or a combination of at least 8 consecutive hours off duty and sleeper berth time.

(h) State of Alaska. (1) Property-carrying commercial motor vehicle. The provisions of § 395.3(a) do not apply to any driver who is driving a commercial motor vehicle in the State of Alaska. A driver who is driving a property-carrying commercial motor vehicle in the State of Alaska must not drive or be required or permitted to drive –

(i) More than 15 hours following 10 consecutive hours off duty; or

(ii) After being on duty for 20 hours or more following 10 consecutive hours off duty.

(iii) After having been on duty for 70 hours in any period of 7 consecutive days, if the motor carrier for which the driver drives does not operate every day in the week; or

(iv) After having been on duty for 80 hours in any period of 8 consecutive days, if the motor carrier for which the driver drives operates every day in the week.

(2) Passenger-carrying commercial motor vehicle. The provisions of § 395.5 do not apply to any driver who is driving a passenger-carrying commercial motor vehicle in the State of Alaska. A driver who is driving a passenger-carrying commercial motor vehicle in the State of Alaska must not drive or be required or permitted to drive –

(i) More than 15 hours following 8 consecutive hours off duty;

(ii) After being on duty for 20 hours or more following 8 consecutive hours off duty;

(iii) After having been on duty for 70 hours in any period of 7 consecutive days, if the motor carrier for which the driver drives does not operate every day in the week; or

(iv) After having been on duty for 80 hours in any period of 8 consecutive days, if the motor carrier for which the driver drives operates every day in the week.

(3) A driver who is driving a commercial motor vehicle in the State of Alaska and who encounters adverse driving conditions (as defined in § 395.2) may drive and be permitted or required to drive a commercial motor vehicle for the period of time needed to complete the run.

(i) After a property-carrying commercial motor vehicle driver completes the run, that driver must be off duty for at least 10 consecutive hours before he/she drives again; and

(ii) After a passenger-carrying commercial motor vehicle driver completes the run, that driver must be off duty for at least 8 consecutive hours before he/she drives again.

* * * * *

(j) Travel time. (1) When a property-carrying commercial motor vehicle driver at the direction of the motor carrier is traveling, but not driving or assuming any other responsibility to the carrier, such time must be counted as on-duty time unless the driver is afforded at least 10 consecutive hours off duty when arriving at destination, in which case he/she must be considered off duty for the entire period.

(2) When a passenger-carrying commercial motor vehicle driver at the direction of the motor carrier is traveling, but not driving or assuming any other responsibility to the carrier, such time must be counted as on-duty time unless the driver is afforded at least 8 consecutive hours off duty when arriving at destination, in which case he/she must be considered off duty for the entire period.

(k) Agricultural operations. The provisions of this part shall not apply to drivers transporting agricultural commodities or farm supplies for agricultural purposes in a State if such transportation:

(1) Is limited to an area within a 100 air mile radius from the source of the commodities or the distribution point for the farm supplies, and

(2) Is conducted during the planting and harvesting seasons within such State, as determined by the State.

* * * * *

(o) Property-carrying driver. A property-carrying driver is exempt from the requirements of § 395.3(a)(2) if:

(1) The driver has returned to the driver's normal work reporting location and the carrier released the driver from duty at that location for the previous five duty tours the driver has worked;

(2) The driver has returned to the normal work reporting location and the carrier releases the driver from duty within 16 hours after coming on duty following 10 consecutive hours off duty; and

(3) The driver has not taken this exemption within the previous 7 consecutive days, except when the driver has begun a new 7- or 8-consecutive day period with the beginning of any off duty period of 34 or more consecutive hours as allowed by § 395.3(c).

7. The section heading and text of § 395.3 is revised to read as follows.

§ 395.3 Maximum driving time for property-carrying vehicles.

Subject to the exceptions and exemptions in § 395.1:

(a) No motor carrier shall permit or require any driver used by it to drive a property-carrying commercial motor vehicle, nor shall any such driver drive a property-carrying commercial motor vehicle:

(1) More than 11 cumulative hours following 10 consecutive hours off duty; or

(2) For any period after the end of the 14th hour after coming on duty following 10 consecutive hours off duty, except when a property-carrying driver complies with the provisions of § 395.1(o).

(b) No motor carrier shall permit or require a driver of a property-carrying commercial motor vehicle to drive, nor shall any driver drive a property-carrying commercial motor vehicle, regardless of the number of motor carriers using the driver's services, for any period after--

(1) Having been on duty 60 hours in any 7 consecutive days if the employing motor carrier does not operate commercial motor vehicles every day of the week; or

(2) Having been on duty 70 hours in any period of 8 consecutive days if the employing motor carrier operates commercial motor vehicles every day of the week.

(c)(1) Any period of 7 consecutive days may end with the beginning of any off duty period of 34 or more consecutive hours; or

(2) Any period of 8 consecutive days may end with the beginning of any off duty period of 34 or more consecutive hours.

8. Section 395.5 is added to read as follows.

§ 395.5 Maximum driving time for passenger-carrying vehicles.

Subject to the exceptions and exemptions in § 395.1 :

(a) No motor carrier shall permit or require any driver used by it to drive a passenger-carrying commercial motor vehicle, nor shall any such driver drive a passenger-carrying commercial motor vehicle:

(1) More than 10 hours following 8 consecutive hours off duty; or

(2) For any period after having been on duty 15 hours following 8 consecutive hours off duty.

(b) No motor carrier shall permit or require a driver of a passenger-carrying commercial motor vehicle to drive, nor shall any driver drive a passenger-carrying commercial motor vehicle, regardless of the number of motor carriers using the driver's services, for any period after--

(1) Having been on duty 60 hours in any 7 consecutive days if the employing motor carrier does not operate commercial motor vehicles every day of the week; or

(2) Having been on duty 70 hours in any period of 8 consecutive days if the employing motor carrier operates commercial motor vehicles every day of the week.

9. Section 395.13 paragraphs (c)(1)(ii) and (d)(2) are revised to read as follows:

§ 395.13 Drivers declared out of service.

* * * * *

(c) * * *

(1) * * *

(i) * * *

(ii) Require a driver who has been declared out of service for failure to prepare a record of duty status to operate a commercial motor vehicle until that driver has been off duty for the appropriate number of consecutive hours required by this part and is in compliance with this section. The appropriate consecutive hours off-duty period may include sleeper berth time.

* * * * *

(d) * * *

(1) * * *

(2) No driver who has been declared out of service, for failing to prepare a record of duty status, shall operate a commercial motor vehicle until the driver has been off duty for the appropriate number of consecutive hours required by this part and is in compliance with this section.

* * * * *

10. Section 395.15 paragraph (j)(2)(ii) is revised to read as follows:

§ 395.15 Automatic on-board recording devices.

* * * * *

(j) * * *

(2) * * *

(i) * * *

(ii) The motor carrier has required or permitted a driver to establish, or the driver has established, a pattern of exceeding the hours of service limitations of this part;

* * * * *

Issued on: April 16, 2003

Annette M. Sandberg
Acting Administrator